THE PREVALENCE OF ASCITIS AMONG PATIENTS ADMITTED IN JINJA RRH

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BMS/0072/123/DU

A RESEARCH DISSERTATION SUBMITED TO THE FACULTY OF CLINICAL MEDICINE AND DENTISTRY IN PARTIAL FULFILLMENT FOR THE AWARD OF BACHELOR'S DEGREE OF MEDICINE AND SURGERY OF KAMPALA INTERNATIONAL UNIVERSITY, WESTERN CAMPUS

JANUARY 2018

DECLARATION

I Aliyinza watongola faith declare that this research report is my original work and has not been submitted for a degree award in this or any other university. All resources contained herein have been duly acknowledged.

APPROVAL

The research report titled To Determine the Prevalence of Ascitis among Patients admitted in Jinja RRH has been approved by my supervisor.

Dr Kuule Julius Kabbali Date: 30th January 2019

Supervisor

ABSTRACT

Introduction: Ascites is a common cause of admission in Africa, especially among patients with liver cirrhosis, and schistosomal periportal fibrosis, both of which are associated with significant morbidity and mortality. However, other causes of ascites are also prevalent in Africa. Tuberculosis account for HIV% of all patients with ascites, but contributes up to 30% among those with HIV. Heart failure is also a significant morbidity and mortality, and has been reported in up to 20% of ascites in Africa. Renal causes of ascites are also significant. However, much is not known about prevalence of ascites in jinja Hospital, and the clinical, socio-demographic characteristics of these patients in out settings. **Purpose**: To determine the prevalence of ascites of patients with ascites admitted in medical wards at Jinja regional referral hospital. **Methodology**: Hospital Based Descriptive Cross-Sectional Study. **Results**: A total of 20 participants, mean age 40.9±1.51 years were included in this study, with equal sexual distribution. The mean duration of symptoms was 3 months, and majority of the participants reported history of abdominal distension, generalized body malaise, lower limb swelling, loss of appetite, and difficulty in breathing. Only a few patients had history of fever (34%), or weight loss (38%). Common causes of ascites were liver cirrhosis 35%, HIV 30%, heart failure 20%, chronic kidney disease 5%, and TB Peritonitis 5%. Less common causes were nephrotic syndrome 5%. **Conclusions:** Ascites commonly affect female with age group of mean age 41 years. And the common causes of ascites were liver cirrhosis, malignant ascites, heart failure, chronic kidney disease, and tuberculosis peritonitis. **Recommendations**: We recommend another study to further describe patients with malignant ascites in our settings. Another study is also needed to determine the grading of ascites in our settings

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ACRONYMS AND ABBREVIATIONS

JRRH; Jinja Regional Referral Hospital

UBOS; Uganda Bureau Of Statistics

USAID; United States Agency for International Development

CHAPTER ONE

INTRODUCTION

1.0 INTRODUCTION

This chapter gives a background of this study and includes the various causes of ascites, it also includes the problem statement, research objectives, research questions, justification for the study, conceptual framework and the scope of the study.

1.1 BACKGROUND

Ascites refers to pathologic fluid collection within the abdominal cavity. Healthy men have little or no intra-peritoneal fluid, but women may normally have as much as 20 mls, depending on the phase of their menstrual cycle.

In England ascites contributes only 0.048% of hospital consultant episodes, but 77% of these patients require hospital admission, while 68% require emergency admission. 51% are males, with mean length of hospital stay of 9.6 days. Mean age for hospital admission is 60 years, but 47% of them are aged 15-59 years (Hasting, 2015).

In the United States of America common causes include liver cirrhosis (81%), cancer (10%), heart failure (3%), Tuberculosis (2%), Dialysis (1%), pancreatic disease (1%), and other causes (2%) 4. However, Tuberculosis is very common in most parts of Africa and must always be considered in all cases of chronic ill-health of an obscure nature. It may account for 20-50% of all cases of ascites, especially due to the HIV epidemic (Hoefs, 2015).

1.2 PATHOGENESIS OF ASCITES

The pathogenesis of ascites is varied depending on the cause, but it may either be due to increased ascitic fluid secretion in the peritoneum, or decreased clearance of the ascitic fluid by the lymphatic system due to either blockage, or stasis as in malignancy.

1.2.1 Transudative Ascites

This is by far the most common type, especially among patients with liver cirrhosis, and schistosomal periportal fibrosis. Similar type is seen in patients with congestive heart failure, or chronic kidney disease, and is characterized by low ascitic fluid protein. It is usually either due to a raised pressure across the portal vein, or changes in the hydrostatic pressure and oncotic pressure gradient across the portal vein (Marshal, 2015).

1.2.2 Exudative Ascites

This is typically due to active secretion of proteins into the peritoneal space, as a result of localized inflammatory process due to infection of the parietal or visceral peritoneum, such as in tuberculosis, pancreatitis, or malignancy. It is generally characterized by high ascitic fluid protein, and low serum ascitic fluid albumin gradient (Marshal, 2015).

1.3 PROBLEM STATEMENT

The major problem that the study seeking to resolve is the limited knowledge and un-documentation Prevalence of ascites in the general population. It is known that only patients with moderate to severe ascites seek medical attention, and it is also important to note that most poor villagers in Africa consult several native herbalists before seeking medical help. Therefore cases seen do not usually reflect the true incidence. Liver cirrhosis is the most common cause of ascites both in Africa and elsewhere but the actual percentage of patient of ascites with live Cirrhosis is not known. And since ascites is the most common cause of admission for patients with liver cirrhosis the prevalence must be established.

1.4 OBJECTIVE OF THE STUDY

1.4.1 General objective

To Determine the Prevalence of Ascitis among Patients admitted in Jinja RRH

1.4.2 Specific objectives

1. To determine how many of the patients have ascites
2. To determine the ratio of male to female patients with Ascites.
3. To elicit the commonest causes of ascites among these patients.

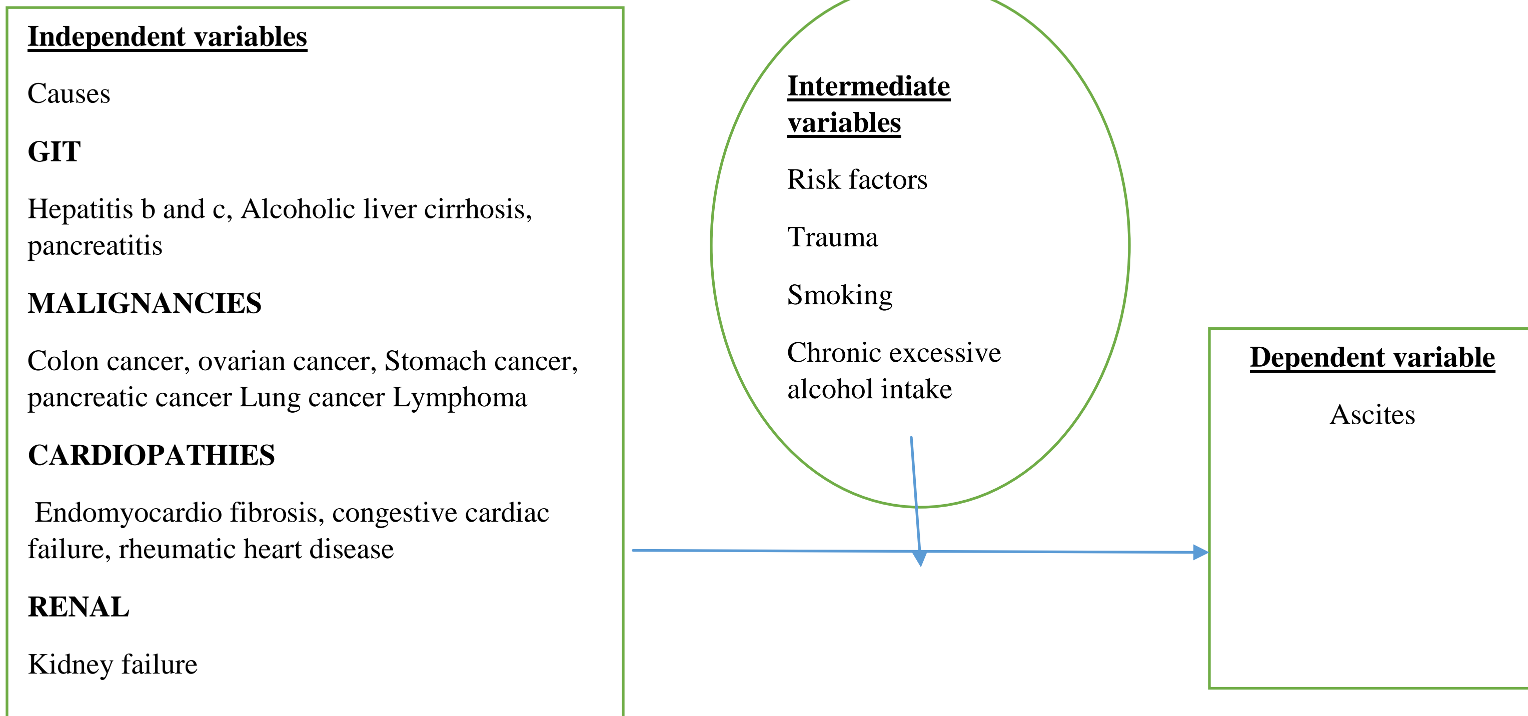
1.5 RESEARCH QUESTIONS

1. How many of the patients have ascites?
2. What is the ratio of male to female patients with Ascitis?
3. What are the commonest causes of ascites in these patients?

1.6 SIGNIFICANCE OF THE STUDY

Knowing how much of the population is affected will help in prioritizing resources to where the biggest burden is, it is also going to improve service delivery for example health professionals will get to know which most appropriate information to disseminate to the people in order to make them more aware about this particular condition. This may also be used as future reference for further research pertaining this topic.

1.6 CONCEPTUAL FRAMEWORK



CHAPTER TWO

LITERATURE REVIEW

2.1.0 CAUSES OF ASCITES

2.1.1Liver cirrhosis

Cirrhosis is defined by World health Organization (WHO) as diffuse process characterized by fibrosis and conversion of normal hepatic architecture into structurally abnormal nodules. Cell death, fibrosis, and regeneration are thus combined to create cirrhosis which is classified as micro nodular (nodular size ranging between 0.1 to 1cm, alcohol consumption being the commonest cause) and macro nodular (nodules of variable sizes up to 5cm, with chronic viral hepatitis as the commonest cause) (Eisenmerg,2016). While the disease has been associated with alcohol in Europe and North America; in Africa up to 59% of patients are infected with Hepatitis B viral infection, and 17% of these patients are found with TP53 mutation due to Aflatoxin exposure. The disease typically affect majority of males; with a mean age of 58 years in Asia and 42.5 years in Africa. Nearly 50% of patients with liver cirrhosis develop ascites within 10 years of diagnosis, and once the diagnosis is made 5-7% of these patients develop ascites annually, and it is a predictor of early mortality. Survival at 1 year is 60%, while the 5- year survival rate is between 25-50% among patients with ascites secondary to chronic liver disease. Wood and Crafts suggested that the Prognosis is particularly poor for patients with refractory ascites and for those developing complications, including spontaneous bacterial peritonitis (SBP) and hepatorenal syndrome (HRS). However, roughly 15% of patients with liver cirrhosis develop ascites of non-hepatic origin (Moore et al, 2003).

1.2.2 Abdominal Tuberculosis

According to Anjun & Khan (2005) peritoneal tuberculosis can involve any part of the gastrointestinal tract, and occurs in three forms: 1) wet type with ascites, 2) dry type with adhesions, and 3) fibrotic type with omental thickening and loculated ascites.

High risk for tuberculous peritonitis. The most common site of involvement of the gastrointestinal tuberculosis is the ileocaecal region. And may presents with a palpable mass in

the right lower quadrant and/or complications of obstruction, perforation or malabsorption especially in the presence of stricture (Strauss, 2002).

1.2.3 Schistosomiasis

However, schistosomiasis is also a common cause of ascites in tropical Africa. In a cross-sectional study done in North Eastern Zaire by Wood PhB, and Crofts. JW, involving 75 cases with gross ascites, schistosomal periportal hypertension was found in 19 (25.3%) of the patients. While 10 (13.3%) had hepatoma, 12 (16%) had alcoholic (micronodular) cirrhosis, 13 (17.3%) had post hepatitic (macronodular) cirrhosis. Other causes were biliary cirrhosis 1, cancer of stomach 1, cancer of pancrease 2, lymphoma 1, sickle cell anemia 1, nephrosis 5, TB peritonitis 2, Heart failure 2, and Pancreatic pseudocyst. Schistosmiasis is an endemic disease in tropical countries, according to WHO 600 million people live in risk areas, and 200 million people are infected in 75 countries. Deposition of eggs and dead worms in various tissues result in formation of immune complexes. They obliterate small vessels and forms granulomas in the portal tract which obstruct the portal vein. About 5-10% of patients with chronic hepato-intestinal schistosomiasis, commonly due to *Schistosoma mansoni,* eventually develop portal hypertension, and are considered to have severe form of the disease (Saadeh & Davis 2004).

1.2.4Malignant Ascites

Malignancies are a common cause of ascites both in the developed and in developing countries. Studies in US have shown that malignancies account for up to 10% of all causes of ascites. Studies in Asia have shown a prevalence ranging from 13% to 25%. Most of the malignancies were due to metastatic colon carcinoma. In Africa, one previous study done in the late 1970's in Eastern Zaire reported malignancy in 22.7% of the patient's ascites, and most of them had hepatocellular carcinoma. In recent study in Nigeria conducted by Ajun & Khan (2015), 22% of the patients with ascites had malignancy, with the commonest being ovarian cancer, gastric carcinoma, and breast cancer. However, this could be due to the fact that this study involved mostly (78.4%) females. In general, the presence of ascites portends a poor prognosis.

1.2.5Cardiac Causes

The estimated crude incidence of heart failure in Sub-Saharan Africa is 3-20 per 1000 per year. It has great social and economic impact, since it typically affects those who are young and economically active individuals. Studies indicate that heart diseases contribute 7-10% of all

medical admissions, and heart failure account for 3-7% of them. Ninety eight percent of patients with heart failure are due to non-ischemic causes. Hypertensive heart disease, rheumatic heart disease, and cardiomyopathy account for up to 65% of the cases. However, the true prevalence of coronary artery disease is underestimated due to diagnostic limitations.

Endomyocardial fibrosis (EMF) is common in most parts of tropical Africa and has been estimated to account for between 25 and 40%, of heart disease. Most patients present with gross ascites and minimal peripheral edema. It has been suggested that EMF is both a cardiac and systemic disease. A study in Uganda histopathologically examined peritoneal biopsy specimens from 30 patients with EMF. Of these, 25 biopsy specimens showed peritoneal fibrosis with inflammatory infiltrates. Five specimens were unsatisfactory, but among them two samples showed striated muscle fibrosis. In addition 60% of the patients had eosinophilia and investigators proposed that EMF includes a systemic inflammatory process that may contribute to ascites in these patients. In another series of EMF patients in Uganda, the ascitic fluid protein content was described as consistent with an exudate in 35 of 47 patients. However, the serum ascites albumin gradient was not reported. Rheumatic heart disease (RHD) is also a significant cause of ascites in tropical Africa, with a prevalence rate of up to 30.4 cases per 1000 population among children in Mozambique. Both of these together with Peripartum cardiomyopathy (PCM) usually present before middle age, unlike in the developed world where the average age of patients with heart failure is 76 years71. Up to 68% of female are affected by RHD as found by Sliwa, K. et al in a prospective register in Soweto, South Africa. Pericarditis and cor-pulmonale contribute about 10% of cases of heart failure. Cor-pulmonale is largely reflecting on the role of chronic post-tuberculosis lung disease, while pericarditis is due to the effect of HIV on tuberculosis.

1.2.6 Nephrotic Syndrome

The term nephrotic syndrome refers to a distinct constellation of clinical and laboratory features of renal disease. It is specifically defined by the presence of heavy proteinuria (albuminuria greater than 3.5 g/24 hours), hypoalbuminemia (less than 3.0 g/dL), and peripheral edema. Hyperlipidemia and thrombotic disease are also frequently observed. In most adults with nephrotic syndrome ascites can be attributed to both hypoalbuminemia, and presence of liver disease or congestive heart failure with increased hepatic sinusoidal pressure. Ackermen Z,

studied 52 adults and 21 children with nephrotic syndrome. He found that the prevalence of ascites among adult patients was 23%, significantly lower than children whose prevalence was 52%. Other studies reported the prevalence of nephrotic syndrome among patients with ascites ranging from 3% to 7%.

1.2.7Chronic Kidney Disease

Chronic kidney disease (CKD) encompasses a spectrum of different pathophysiologic processes associated with abnormal kidney function, and a progressive decline in glomerular filtration rate (GFR). And typically corresponds to CKD stage 3-5, when the GFR is below 60ml/min/m3.The incidence of ascites in advanced kidney disease (CKD) varies from 0.7% to 20%76. And up to 3% of all medical admissions in tropical countries are due to renal related complains. Interestingly, however CKD may also be a complication of liver cirrhosis (Hasting, 2015). Depending on the etiology and stage of the disease CKD may present with signs of hypertension, edema, anemia, and associated easy fatigability; decreasing appetite with progressive malnutrition, abnormalities in calcium, phosphorus, and mineral-regulating hormones, such as 1,25(OH)2D3 (calcitriol) and parathyroid hormone (PTH); and abnormalities in sodium, potassium, water, and acid-base homeostasis; and finally uremic syndrome which usually require renal replacement therapy. The association of chronic renal failure and ascites was first described in 1970. The reported incidence of ascites varies from 0.7 to 26% with male predominance and affect wide range of age from 11 to 71 years (mean age 41 years), Ascites has also been associated with dialysis among patients with chronic kidney disease (Wood & Craft 2017).

1.2.8 Pancreatic Diseases

Acute pancreatitis is frequently associated with ascites, and together with pleural effusion has been identified as independent predictors of severity. Ascites has also been reported in chronic pancreatitis. Acute pancreatitis typically presents with acute abdominal pain and distension, nausea, and vomiting. Maringhini A, et al studied the incidence, natural history, and prognostic role of ascites among patients with acute pancreatitis. Among 100 patients, 18 had ascites. And the presence of ascites was associated with pseudocyst during follow up (Saadeh & Davis 2004). The pathogenesis of pancreatic ascites is uncertain, but there are three possible mechanisms; the first is pancreatic duct obstruction, with leakage of pancreatic fluid into the peritoneal cavity causing diffuse peritoneal infiltration and ascites; second is the obstruction of the pancreatoduodenal lymphatics by enlarged lymph nodes, peripancreatitis, pancreatic cysts, and

fibrosis. This results in retrograde lymphatic flow with formation of chylous ascites; and third is the hyponatremia due to malabsorption from pancreatic disease. This augments ascitic collection by physical influence, and loss of protein into the ascitic fluid establishes a vicious cycle.

1.2.9 Mixed causes of ascites

Although cirrhosis is the cause of ascites in most patients with ascites evaluated by the internist, a cause other than liver disease is found in approximately 15% of patients in the developed world. The proportion may be higher in Africa. Approximately 5% of these patients have two causes of ascites (Moore et al2003). This is referred to as mixed ascites. In the developed world usually these patients have cirrhosis plus one other cause, such as peritoneal carcinomatosis, or tuberculous peritonitis. Interpretation of ascitic fluid in these patients is difficult, and they pose a diagnostic challenge. However, in Africa due to differences in distribution of causes of ascites such patients may have a combination of different causes of ascites other than liver cirrhosis (Hasting 2015)

CHAPTER THREE:

CHAPTER THREE: METHODOLOGY

3.1 Chapter overview

This chapter consists of the research design, study population, area of study, sample size, sampling technique, data collection methods and instruments, research procedure, data processing and analysis.

3.2 Study Design

A cross sectional study design using a mixed method approach was employed at Jinja regional referral hospital Jinja District, and this helped to establish the study by collecting relevant information. To achieve this, a purely quantitative based approach was used to study the socio-demographic, causes, presentation and diagnosis of ascites.

3.3 Study Area

The study was conducted in Jinja Regional Referral Hospital (JRRH) located in the southeastern part of Uganda.

According to the 2014 census data, JRRH serves a population of 471242 in Jinja district with the hospital having a bed capacity of 408 beds and serves the region consisting of Bugiri, Kamuli, Iganga, Mayuge, Namutumba, Kaliro, Buyende, Luuka, Namayingo and Jinja districts.

JRRH offers both general and specialized services .It is also a designated internship hospital where medical graduates undergo a year of internship under the supervision of consultants and specialists in the medical and surgical disciplines.

3.4 Population

Informants for this study were drawn from medical ward depending on the information needed. In general, respondents were drawn from Jinja regional referral hospital.

3.5 Sampling

Using the formula developed by (Charan and Biswas, 2013) for cross-sectional studies with qualitative or categorical variables for unknown total population, the sample size was obtained.

Number of patients who were seeking treatment from medical ward were recruited using a formula for descriptive cross-sectional study (Kish, 2013). To arrive at the sample size, “Fishers et al 1998” formula was used in calculating the population.

$$n = \frac{Z^2 p(1-p)}{d^2}$$

Where; n = the desired sample size (if the target population is greater than 10,000)

Z = the standard normal deviate 1.96 at 95% confidence interval

p = population with desired characteristic (medical patient with ascites)

d= acceptable error (0.05)

If p=0.5 q =1- 0.5 =0.5

$n = 1.96^2 x0.5\ x0.5/0.0025$

n = 28 patients

3.6 Selection Criteria

3.6.1 Inclusion criteria

All patients with ascites who sought medical attention from Jinja regional referral hospital jinja District medical ward, and consented to participate in the study.

3.6.2 Exclusion criteria

Participants were excluded if they didn't consent to participate in the study.

3.7 Data collection tool

Data checklist was used because the study employed a quantitative approach to study this phenomenon. The researcher designed a checklist (Appendix four and five) consisting of tables on socio-demographic and its presentation among patients with ascites, and this was used as the data collection instrument. Due to the non-existence of a validated questionnaire on the issue under investigation, the researcher table based on the relevant literature from different sources (Ebu et al., 2014), expert opinions from live diseases from medical ward department of internal medicine was obtained.

3.8 Data collection Procedure

Data collection was done by the researcher. Information regarding the study was explained to the participants; they were given a consent form to sign based on their willingness to participate in the study. The data was collected at the records and in-patients department of medical ward. The researcher explained the instructions concerning the data collection checklist.

3.9 Data analysis

Access data entry forms were used in the entry of the data collected from the records, then Statistical Package for Social Scientist (SPSS) software was used for data cleaning and analysis. Using this software, the researcher generated tables, demonstrative charts and graphs to provide the study with required information from the results and findings in the data.

3.10 Data quality control

3.10.1 Validity

The data entry forms in form of table were pretested in a month prior to the beginning of the study and fundamental changes required were edited before the commencement of the study.

3.10.2 Reliability

All entry tables administered to the respondents were checked for completeness before data entry and there were no incompleteness. Numbering of tables was done in order to avoid repetition during data entry in the computer.

3.10.3 Ethical Consideration

Permission to carry out research was obtained from Jinja regional referral hospital IREC and an introductory letter from the faculty administrator school of clinical medicine and dentistry.

Informed consent was obtained from participants clearly outlining the objectives of the study before administering the questionnaires and refusal / denial did not lead to any penalty.

The participants were assured of confidentiality with all the information they provided in the checklist by use of codes and they were allowed to pull out of the study anytime without giving reason.

CHAPTER FOUR

RESULTS

4.1 Socio-demographic characteristics of the study sample

A total of 28 adult patients admitted with ascites in Medical wards at jinja regional referral hospital during the study period, were selected for inclusion into the study. Among them, 2 denied consent to participate, and 6 had incomplete data.

Therefore, a total of 20 participants were included in this analysis. Among them 11 (55%) came from Jinja town, while the rest came from other regions upcountry.

Of the 20 participants, 11 (55%) were females, with mean age of 40.9 ± 1.51 years. Majority 7 (64%) of them were in the age group 18-39; and 6(55%) of them were either married or cohabiting, but the difference between sexes was not statistically different (p 0.31).

Majority 8 (73%) of the study participants had primary education and below, and the remainder had secondary education and above. Males had higher education compared to females, but the difference noted was not statistically significant (p 0.32).

Most 7 (63%) of the participants were involved in income generating activity, of which 3 (27%) were peasants, 2 (18%) were petty traders, 2(9%) were private sector employees, and 2(9%) were government employees. More males were involved in income generating activity compared to females, with a statistically significant difference (p 0.01).

Table 1: Socio-demographic Characteristics of Adult patients with ascites admitted in medical wards at jinja hospital

Characteristic	Female		Male		total	p.value
Age group	N=11	Percentage	N=9	percentage	20	
18-39	7	64	4	44	11	0.78
40.59	3	27	3	33	6	
60+	1	9	2	23	4	
Marital status						
single	4	36	2	22	6	0.31
Married/cohabiting	6	55	6	67	12	
Divorced/windowed	1	9	1	11	3	
education						

Primary & below	8	73	6	67	14	0.32
Secondary	2	18	1	11	3	
Post-secondary	1	9	2	22	3	
Occupation						
Government	1	9	2	22	3	0.01
Private sector	1	9	1	12	2	
Petty trader	2	18	3	33	5	
Not employed	4	37	3	33	7	
Peasant	3	27			3	

4.2 Clinical characteristics of adult patients with ascites admitted in Medical wards at jinja regional referral hospital

Reported symptoms and duration 0f the 20 study participants, about two fifth (38.3%) had symptoms for duration of less than three months, over a quarter (29.1%) had symptoms for 3-6 months, whereas about one third (32.0%) had symptoms for longer than 6 months. The median duration of symptoms was 3 months.

Majority of the study participants reported history of abdominal distension 20 (98.1%), generalized body weakness 19 (99%), lower limb swelling 16 (80%), loss of appetite 15 (76.7%), difficulty in breathing 13 (65%), nausea 11 (58.3%), dyspnea on exertion 12(58.3%), and palpitations 12 (55.8%).

Table 2: Frequencies of reported symptoms among adult patients with ascites admitted in Medical wards at Jinja regional referral hospital (N= 20)

Symptoms	**Frequency**	**Percentage**
Percentage Abdominal distension	20	100
Generalized body weakness	19	99
Lower limb swelling	16	80
Loss of appetite	15	76.7
Difficulty in breathing	13	65
Dyspnea on exertion	12	58.3

Palpitations	12	58.3
Abdominal pain	57	55.8
Reduced urine output	9	46.6
Facial swelling	9	44.7
Cough	8	42.7
Weight loss	8	39
Nocturnal cough	7	38.8
Paroxysmal nocturnal dyspnea	7	36.9
Altered sleep pattern	6	35.9
Fever	6	35.9
Jaundice	6	34
Vomiting	5	30.1
Night sweets	5	29.1
Melena	5	24.3
Chest pain	4	21.4
Vomiting blood	3	12.6
Hematuria	2	7.8
Hemoptysis	2	6.8

4.3 General Physical signs upon examination

General Physical signs upon examination of the 120 study participants, majority 15 (73%) were pale, 13 (64%) had lower limb edema, 7 (36%) were wasted, and 7(30%) were jaundiced. But only 1 (7%) had finger clubbing.

Table 3: Frequencies of reported general physical signs among adult patients with ascites admitted in Medical wards at Jinja regional referral hospital (N= 20)

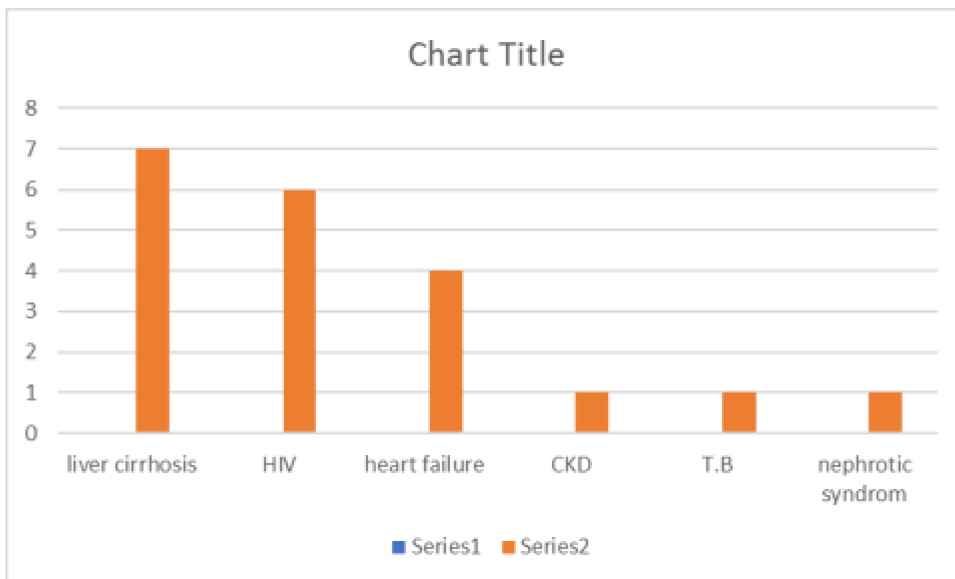
General Examination	Frequency	Percentage
Pale	15	73
Lower Limb Edema	13	64
Muscle Wasting	7	36
Jaundice	6	30
Finger Clubbing	1	7

4.4 Distribution of causes of ascites among patients admitted in Medical wards at Jinja regional referral hospital.

Of the 20 participants, several causes of ascites were identified. Most of the diagnoses were unknown prior to their admission, except for a few who were being re-admitted. However, the same protocol of investigations was followed for all patients.

The commonest cause of ascites was Liver cirrhosis 7 (35.0%), followed by HIV 6 (30%), Heart Failure 4(20%), Chronic Kidney Disease 1 (5%), and TB Peritonitis 1 (5%). Less common causes were Nephrotic Syndrome 1(5%).

Figure4: Distribution of causes of as cites among patients admitted in Medical wards at Jinja regional referral Hospital (N= 20)



CHAPTER FIVE

5.1 DISCUSSION

This study has shown that liver cirrhosis is the leading cause of ascites among adults admitted in medical wards in our setting, followed by malignant ascites, and heart failure. There was an equal sex distribution, and participants had a mean age of 40.9 ± 1.5 years. The most common symptoms were abdominal distension, generalized body weakness, and lower limb swelling. In addition to ascites most participants were wasted, had conjunctival pallor, and lower limb edema

5.2 Socio-demographic characteristics of adult patients with ascites

The study population comprised of 20 adult patients with ascites, of which there was an almost equal distribution of males and females. There are conflicting reports on the sex distribution among patients with ascites. While Bandar, A reported male predominance at 72% in Saudi Arabia; others reported a female predominance ranging from 60-75%. These differences in sex distribution probably reflect differences in the prevalence of the various causes of ascites in these populations. While Bandar AA, had 69% of the participants with liver cirrhosis; Anjun A, et al, and Mahmood K, et al had majority of their patients with either tuberculosis or malignancy. However, due to limitations inherent in consecutive sampling, a possibility of a selection bias in this study can't be excluded.

In this study, over a half (57.3%) of the participants were aged 18-39 years, with mean age of 40.9 ± 1.51 years. These finding was much lower compared to a studies in Asia, and Europe. Malabu, et al did not report on the mean age of his patients in Nigeria. However, these finding is similar to those reported in Ivory Coast and Gambia. This observation suggests the fact that the onset of ascites is probably earlier in Africa, compared to the rest of the world. But it may also reflect to differences in the distribution of the various causes of ascites in the different populations. While liver cirrhosis is a disease of the middle aged in Asia, in our study a significant proportion of participants had liver cirrhosis, heart failure, and malignant ascites (especially Hepatocellular carcinoma), of which majority presented before 40 years of age.

Three quarters (74.8%) of the study participants had primary education and below, and a significant proportion (37%) of them were not employed. Among those who were involved in gainful employment, most of them were either peasants (22.3%), or petty traders (23.3%). This is

consistent with other previous observations in Africa which have associated ascites with low socio-economic status.

5.3 Clinical Characteristics of adult patients with ascites

The mean duration of symptoms was 3 months, which is similar to duration reported by Luck et al in Pakistan, indicating that most patients with ascites delay seeking health care both in Asia and Africa?

The frequency of symptoms of abdominal distension, abdominal pain, weight loss, and fever were similar to findings by other studies in Asia. This similarity may be due to the chronic nature of most causes of ascites in these populations.

Fever which was reported by 34% of the respondents in this study was less common compared to 44 to 73% reported previously. However, this difference may be due to the fact that both Mahmood et al, and Luck et al studied only patients with exudative ascites.

Almost three quarters (73.8%) of the study participants had conjunctival pallor, similar to 66.7% reported by Luck et al in India. This may suggest a high frequency of anemia among these patients, which may be due to many causes including poor appetite, hypersplenism, or chronic illness.

However, jaundice (30.1%), splenomegaly (17.5%), and hepatomegaly (38.8%) were more common in this study population compared to just 1%, 1%, and 24.4% respectively as reported by Luck NH. The high proportion of splenomegaly may be due to the corresponding high proportion of portal hypertensive causes (such as liver cirrhosis and heart failure); while hepatomegaly may be due to many causes including heart failure, Hepatocellular carcinoma, lymphoma, or systemic infections. The high proportion of jaundice in this population may be contributed by participants with liver cirrhosis, and Hepatocellular carcinoma some of whom had features of Decompasated liver disease.

5.4. Causes of ascites

This study showed that liver cirrhosis was the most common cause of ascites, affecting 35% of the participants, followed by HIV (30%), heart failure (20%), chronic kidney disease (1%), and TB peritonitis (1%). These findings are similar to other studies in Africa and Asia, which also reported that liver cirrhosis was the leading cause of ascites, affecting 44-65% of the study participants.

Our findings differ from to those of Malabu et al in Nigeria, who reported a lower proportion of heart disease (6%), and a higher proportion of nephrotic syndrome (5%).A higher proportion of heart failure(17.5%), and renal failure (12.6%), with lower proportion of nephrotic syndrome (1.9%)in this study population may be due to differences in the prevalence of these conditions in these populations; since generally heart failure, and renal failure contribute up to 7%, and 3% of all medical admissions in Sub-Saharan Africa.

The participants with CKD had other causes of ascites. This is similar to previous reports by Luck et al reported chronic kidney disease as a co-morbidity to other causes of ascites. Indicating that CKD, is also an important cause of mixed ascites. Similarly, this patient was males. This finding is similar to previous studies which had reported ascites in up to 26% of patients with chronic renal failure, majority of them being males.

Majority (88.8%) of the patients with heart failure had either rheumatic heart disease, hypertensive heart disease, or dilated Cardiomyopathy; and over three quarter of them (77.8%) were females. This is consistent with previous findings that these heart conditions account for up to 65% of patients with heart failure in Africa. The burden of these conditions in out setting is largely unknown, but these findings may call for further studies in this area.

The proportion of TB peritonitis (8.7%) in this population was similar to10.6% reported by Bandar, et al in Saudi Arabia, but less common compared to a proportion of 20-23% reported in Nigeria and India. And the highest proportions were reported at 43-66% among patients with exudative ascites in Asia. The lower proportion of TB Peritonitis in this study may be due the fact that we included all patients with ascites while others had included only patients with exudative ascites. Nonetheless, these observations may also be due to differences in the prevalence of tuberculosis in these populations. Since the prevalence of Tuberculosis 2011 in Pakistan, and India was reported to 350, and 249per 100,000 population respectively; compared to only 177, and 171 per 100,000 population in Nigeria, and Uganda respectively HIV epidemic has been associated with increased prevalence of TB Peritonitis, and has been reported to account for up to 20-50% of all cases of ascites. However, in this study population only 33.3% (3/9) of the participants with TB peritonitis were infected with HIV. This may explain the low proportion of TB peritonitis in this study population.

5.6 CONCLUSION

From the findings of this study we can draw the following conclusions

1. Ascites among adult patients affect both sexes with variable distribution between studies. And it is more common in the younger age group here in Africa compared to the rest of the world.
2. The clinical presentation of adult patients with ascites in this study population is similar to those of previous studies, with a mean duration of symptoms of three months.
3. The most common causes of ascites in this setting (liver cirrhosis, malignant ascites, heart failure, chronic kidney disease, and TB Peritonitis) are similar to findings from previous studies in Africa, and Asia.

5.7 RECOMMENDATIONS

In view of our observations in this study we recommend that

1. There should must be quantification or diagnosis of ascites basing on biopsy since since in jinja we use only the clinical diagnosis.
2. they must be grading of the ascites to identify what was based to say this patient has ascites or this doesn't qualify for diagnosis of ascites.
3. Another study is needed to describe the characteristics of patients with malignant ascites in our settings.

REFERENCES

1. Hastings GE. Ascites. September 26, 2015 (www.wichita.kumc.eol/ascites/pdf)
2. Saadeh S, Davis GL. Management of Ascites in patients with end-stage liver disease. *Rev Gastroenterol Disord* 2004;4:175-85
3. Runyon BA, Kaplan MM, Benis PA. Diagnosis and evaluation of patients with ascites. *Uptodate* Desktop Version 17.3. 2009. (Accessed Jan 4, 2012)
4. D'Amico G, Murabito A,Pagliaro L, et al. Survival and prognostic indicators in compensated and decompansated cirrhosis. *Dig Dis Sci* 1986;31:468-475
5. Moore KP, Wong F, Gines P, et al. The management of ascites in cirrhosis: Report on the consensus conference of the Ascites Club. *Hepatology* 2003 july;38(1):25866
6. Wood Ph.B, Crofts J.W. The differential diagnosis of gross ascites in North East Zaire. Ann, Soc. *Belge Med Trop* 2017; (60): 395-403.
7. Marshal J.B. Tuberculosis of the Gastrointestinal Tract and Peritonium. *Am J Gasroenterol* 2017; 88: 989-99.
8. Eisenmerg M.J. Rheumatic heart disease in the developing world: prevalence and, prevention, and control. *Eur Heart J* 2016;14(1): 122-128.
9. Anjun A, Khan MN. Peritoneal Biopsy: Its role in exudative ascites. *Professional Med J* 2005; 12(3):281-286.
10. Khalid M, Mohamad IS, Riaz M, et al. Percutaneous needle peritoneal biapsy in the diagnosis of exudative ascites. *J Ayuv Med Coll Abbottabd* 2008;20(4).
11. Hoefs JC. Serum protein concentration and portal pressure determine the ascitic fluid protein concentration in patients with chronic liver disease. *J Lab Clin Med* 2015;102:260-273. PMID: 6864073
12. Shen-Jyh Chen, Sun-Sang Wang, Chi-Wen Lui, et al. Clinical value of tumour markers and serum-ascites albumin gradient in the diagnosis of malignancy-related ascites. *J Gastroenterol and Hepatol* 2015; 9(4):396–400.

13. Marsano LS. Ascites and related disorders. Lecture notes. University of Louisville (https://louisville.edu/medschool/gimedicine/division-lecture-files/marsano-lectures/Ascites%20and%20Related%20Disorders.pdf) (Accessed Feb 2nd, 2012)

14. Kuiper JJ, De Man RA, Van Buuren HR. Review article: management of ascites and associated complications in patients with cirrhosis. *Aliment Pharmacol Therap* 2007;26(2): 183- 193.

15. Strauss E. Hepatosplenic Schistosomiasis: a model for the study of portal hypertension. *Ann Hepatol* 2002; 1(1): 06-11.

16. Runyon BA. AASLD Practice Guidelines Committee. Management of adult patients with ascites due to cirrhosis: an update. *Hepatology* 2009;49:2087-107.

17. Hospital Episode Statistics, Department of Health, England, 2002-03 (www.rightsiagnosis.com/a/ascites/hospital.htm)

APPENDICES

APPENDIX 1: DATA COLLECTION SHEET

APPENDICES

Appendix I: Questionnaire

TITLE: TO DETERMINE THE PREVALENCE OF ASCITIS AMONG PATIENTS ADMITTED IN JINJA RRH

PART I: DEMOGRAPHIC CHARACTERISTICS

Date of interview ________________

Serial Number _________

File Number ________________

1.Sex

Male 1

Female 2

2. Age		**Yes**	**No**
years Below 25 yrs	1	2	
26 – 30 yrs	1	2	
31 – 35 yrs	1	2	
36 – 40 yrs	1	2	
41 – 45 yrs	1	2	
46 – 50 yrs	1	2	
51 – 55 yrs	1	2	
56 – 60 yrs	1	2	
Above 60 yrs	1	2	

3.**District ________________ 4. Ward _________________**

4. Marital status	**Yes**	**No**
Single	1	2
Cohabiting	1	2
Married	1	2
Divorced	1	2

Widowed 1 2

5. Highest formal education achieved **Yes** **No**

None 1 2

Primary school 1 2

Secondary school 1 2

Post-Secondary 1 2

6. What is your occupation **Yes** **No**

a) Government employee 1 2
b) private sector employee 1 2
c) Petty trade 1 2
d) Housewife 1 2
e) Not employed 1 2
f) Other (mention) __________________________

PART II:

7. **HISTORY** **Yes** **No** **Duration/When**

		Yes	No	Duration/When
a)	Abdominal distension	1	2	…………………………..
b)	Abdominal pain	1	2	…………………………..
c)	Loss of appetite	1	2	…………………………..
d)	Nausea	1	2	…………………………..
e)	Vomiting	1	2	…………………………….
f)	Vomiting blood	1	2	……………………………
g)	Fever	1	2	……………………….
h)	Yellow coloration of eyes	1	2	…………………………….
i)	Altered sleep pattern	1	2	……………………………
j)	. Weight loss	1	2	…………………………..
k)	Night sweats	1	2	………………………………
l)	Cough	1	2	………………………………
m)	Hemoptysis	1	2	………………………………
n)	Chest pain	1	2	……………………………….
o)	Difficulty in breathing	1	2	……………………………………
p)	Lower limb swelling	1	2	……………………………………
q)	Facial swelling	1	2	…………………………………
r)	Body weakness	1	2	…………………………………
s)	Palpitations	1	2	…………………………………
t)	Dyspnea on exertion	1	2	…………………………………..
u)	Paroxysmal nocturnal dyspnea	1	2	……………………………..
v)	Nocturnal cough	1	2	……………………………..
w)	Reduced urine output	1	2	…………………………………
x)	Hematuria	1	2	…………………………………….

y) Melena 1 2

………………………………………..

PART III:

8.**PHYSICAL SIGNS**

a) Temperature ____oC 36
b) Weight _____kg 37.
c) Height _____cm 38.
d) BP _____/_____mmHg 39.
e) PR _______b/m 40. RR _______b/m

9.**General**	**Yes**	**No**
a) Pallor	1	2
b) Jaundice	1	2
c) Oral lesions	1	2
d) Wasted/Cachexic	1	2
e) Lower limb edema	1	2
f) Sacral edema (Anasarca)	1	2
g) Finger clubbing	1	2
h) Leukonychia	1	2
i) Palmar Erythema	1	2
j) Dupuytrens contracture	1	2
k) Spider naevi	1	2
l) Scratch marks	1	2

10.**Abdominal Exam**	**Yes**	**No**
Distended veins on inspection	1	2
If yes, draining?		
a. Cephalic	1	2
b. Caudally	1	2
Spleen palpable .		
a. Size (BLCM) _______cm	1	2
b. Venous hum	1	2
Liver palpable		
a. Span _____ cm	1	2
b.Tenderness	1	2
c. Consistency		
a) Soft	1	2

b) Firm 1 2

c) Hard 1 2

d) NA

d. Surface

a) Smooth 1 2

b) Rough 1 2

c) Nodular 1 2

d) NA

e. Bruit heard

11. Any palpable mass **Yes** **No**

If yes, describe 1 2

a. Location ________

b. Size ___________ cm

c. Consistency ____________

PART IV: CLINICAL DIAGNOSIS

12. Clinical diagnosis (es) on the day of interview

…………………………………………………….