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RESEARCH ARTICLE

BLEEDING OESOPHAGEAL VARICES, CLINICAL PRESENTATION AND OUTCOME OF MANAGEMENT IN WAD MADANI TEACHING HOSPITAL.

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Abstract

Bleeding oesophageal varices is a common complication of Portal hypertension (PHTN) in Gezira state. The most common cause of PHTN is periportal fibrosis due to Schistosomiasis. The aim of this work is to study the clinical presentation of this life threatening condition and to evaluate the outcome of management. This study is a prospective hospital based clinical study which was carried out in Wad Madani Teaching Hospital (WMTH) during the period from Jan 2009 to Dec 2010. A total of 75 (n=75) patients suffering from bleeding oesophageal varices were included in the study. Any patients from other causes of bleeding were excluded. All patients had a good history, physical examination and investigation for their bleeding episodes. Different methodology were used. All patients were followed up during this period for variceal rebleeding. The study included 75 patients: 53 patients (70.7%) were males and 22 patients (29.3%) were females, with a male to female ratio of (2.4:1.0). The past medical history showed 60% of them had schistosomiasis. Patients who presented with haematemesis were 64 patients (85.3%). Splenomegaly was found in 55 patients (73.3%). Pancytopenia was found in 67 patients (89.3%). The study showed that any size of oesophageal varices can bleed regardless of the grading. There was recurrent bleeding in 17 patients (22.7%). Unfortunately five patients died during this study constituting 6.7% mortality. This study concluded that the commonest cause of variceal bleeding is schistosomal portal hypertension. Outcomes are poor once variceal bleeding has occurred, therefore primary prophylaxis is indicated. Because there is a high risk of recurrence after an initial haemorrhage, preventive strategies are required and should be tailored to the patient's clinical condition, surgical risk and prognosis. With regards to the treatment of acute haemorrhage, treatment with a combination of methods is likely to gain popularity.

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Introduction:-

Rationale

Objectives

Literature review

Introduction

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Bleeding oesophageal varices:-

Bleeding from oesophageal varices is responsible for 5-11% of upper GI bleeding (incidence varies depending on geographic location). Other causes for upper GI bleeding are acute gastric erosions, hemorrhagic gastritis (18%), Mallory-Weiss syndrome (10%), gastric carcinoma (6%), and other causes (6%).⁽¹⁾

A. Definition

Bleeding oesophageal varices is defined as bleeding resulting from dilated veins in the walls of the lower part of the oesophagus.

B. Causes

Bleeding varices is a life-threatening complication of portal hypertension. The portal vein carries blood from the intestine to the liver. Increased pressure causes the veins to balloon outward intralumenal. The vessels may rupture, causing haematemesis and melaena. variceal bleeding occurs when the thin wall of varix leaks. The erosion theory proposes that leaks are caused by external injury. On the contrary, today accepted "explosion" theory proposes that variceal rupture is mainly a consequence of increased hydrostatic pressure inside the varix, which causes an increase in the tension of the variceal wall to above its elastic limit⁽²⁾. If a large volume of blood is lost, signs of **shock** will develop. Any cause of chronic liver disease can cause oesophageal varices.

The following are the risk factors for BOV:

- Variceal size: The larger the varix, the higher the risk of rupture and bleeding. However, patients may bleed from small varices too.⁽³⁾
- The presence of endoscopic red color signs (eg; red whale markings, cherry red spots)
- The Child classification, especially the presence of ascites, increases the risk of haemorrhage.⁽⁴⁾

Symptoms:-

- **Haematemesis** : vomiting of blood due to rupture oesophageal varix.
- **Melaena** : black tarry feces due to gastrointestinal haemorrhage.
- **Hematochezia** : passage of maroon-colored stool.
- **Oliguria**: decreased urine output as a sign of dehydration.
- Symptoms of chronic liver disease
- **Thirst**: sign of dehydration
- **Pallor**: the patient can notice his pallor from his hands and eyes.
- **Light headedness**: can be simply an indication of a temporary shortage of blood or oxygen to the brain due to a drop in blood pressure, rapid dehydration from vomiting

Physical examination:-

- Pallor: due to blood loss.
- Signs of chronic liver disease or cirrhosis
- Low blood pressure (hypotension)
- Tachycardia: due to hyperdynamic circulation caused by anemia.
- Bloody or black stools on rectal examination.

C. Investigation

- **Barium swallow**: showing oesophageal filling defects.
- **Upper GIT Endoscopy**: grading I, II, III and IV.
- **CBC**: low platelet, increased reticulocyte, low white blood cells and low red blood cells.
- **US**: the liver texture, PPF, ascites, thrombus in portal vein and splenic artery.
- **LFT**. The liver impairment and the low albumin.
- **Splenoportography**: The portosystemic anastomosis.

Management of bleeding oesophageal varices:-**A. Resuscitation**

The goal of treatment is to stop **acute** bleeding as soon as possible ,to replace the blood loss and to treat the persistent varices with medicines and medical procedures. Bleeding must be controlled quickly to replace blood,

stop the acute bleeding and prevent recurrence. If massive bleeding occurs, the patient may be placed on a ventilator to protect the airway and prevent blood from going down into the lungs.

B. Medical treatment

1. Vasopressin

Vasopressin is an antidiuretic hormone, which decreases portal venous flow and therefore portal and variceal pressure via splanchnic vasoconstriction. It also constricts oesophageal smooth muscles therefore tamponading bleeding. Vasopressin temporarily controls acute haemorrhage in 50-70% of cases.⁽⁵⁾

2. Somatostatin

Somatostatin is a tetra deca peptide secreted naturally by gastrointestinal tract (cells of gastric antrum, duodenum, and pancreatic islet D cells). It decreases splanchnic blood flow therefore decreases portal and variceal flow and pressure. The half-life of somatostatin is 2-3 minutes, so continuous infusion is necessary.

3. Beta blockers

Beta blockers have prophylactic role decreasing cardiac output, hepatic blood flow and portal pressure (in some patients). But it has no role in acute bleeding. The efficacy of beta-blockers on the risk of recurrent bleeding is less clear, but these substances significantly decrease the risk of rebleeding by approximately 30%.⁽⁶⁾

4. Balloon Tamponade

Inflatable balloons are used to tamponade the oesophageal wall and the gastro oesophageal junction, and therefore halt acute bleeding e.g., Sengstaken-Blakemore which has the following parts:

- Two balloons : oesophageal , gastro-oesophageal junction
- Three lumens: two for inflating balloons, one for gastric suction.

The risks of using balloon tamponade are:

- Oesophageal rupture
- Oesophageal pressure necrosis
- Tracheal obstruction from migration of balloon
- Aspiration pneumonia

C. Endoscopic techniques

1. Endoscopic sclerotherapy

Endoscopic sclerotherapy is performed using a flexible endoscope and can be done through direct injection or Paravariceal injection. The sclerosants, are mainly fatty acid based (ethanolamine oleate or sodium morrhuate). Complications like transient retrosternal chest pain, dysphagia, ulceration , perforation , injection site leak , portal or mesenteric vein thrombosis , cardiac , pulmonary and bacteremia are common.⁽⁷⁾

2. Endoscopic banding

Endoscopic banding is in use since 1990 and it is similar to banding haemorrhoids. Endoscopic band ligation was developed as an alternative to sclerotherapy. It is performed by attachment of a device loaded with rubber bands to the tip of the endoscope. Varices are sucked into the device using the suction channel of the endoscope and then the rubber band is deployed around its base by pulling on a trip wire, which releases the rubber band. Devices that are loaded with 6 and 10 rubber bands are now commercially available. Small varices are often difficult to suck into the banding device and are not suitable for this procedure. It has Slight decrease in the incidence of rebleed. The advantages are faster variceal obliteration than sclerotherapy, fewer complications and less rebleeding. Technically it is difficult during acute bleeding.⁽⁸⁾

D. Surgical treatment

Emergency surgery may be used rarely to treat patients if other therapies fail. Surgical shunting should be considered in cases of continued haemorrhage or recurrent early rebleeding that cannot be controlled by endoscopic or pharmacologic means and when transjugular shunting is not available or technically unfeasible. Surgical options include portosystemic shunting or oesophageal staple transection with or without oesophagogastric devascularization.

Regardless of the choice of the surgical technique, morbidity is high in patients with advanced liver disease, and the 30-day mortality associated with emergency surgery approaches 80 percent in such patients.⁽⁹⁾

1. Portosystemic shunts

It is the long term treatment of portal hypertension, but has fewer efficacies in acute bleeding. The portal blood bypasses around the liver to the systemic circulation, in about 30-50% of patients end up with a progressive liver failure and hepatic encephalopathy. The Potential problems are:

- The Bypassed liver has decreased portal pressure which leads to hepatic atrophy and end hepatic insufficiency, which will be complicated with encephalopathy and death.
- Portacaval shunts have been abandoned for primary prophylaxis of variceal haemorrhage.

2. Devascularization and transection

These operations are the last resort following the failure of medical and endoscopic treatment or for elective patients who cannot be shunted due to splenic and mesenteric vein thrombosis. Techniques range from a simple transection of the oesophagus to the extreme oesophagogastric devascularization with splenectomy.⁽¹⁰⁾

Complications:-

- *Leaks*: following the transection detected by leakage of barium into the chest.
- Ischaemic oesophagus with necrosis of the anastomosis
- *Stricture formation*

3. Liver transplant

Liver transplant is used when a patient has end stage liver disease. Liver transplantation is the replacement of a diseased liver with a healthy liver allograft. The most commonly used technique is orthotopic transplantation, in which the native liver is removed and replaced by the donor organ in the same anatomic location as the original liver. There is no exact model to predict the survival rates; however, those with transplants have a 58% chance of surviving 15 years. Failure of the transplanted liver occurs in 10% to 15% of all cases.⁽¹¹⁾

E. Transcutaneous techniques

Trans jugular Intrahepatic Porto systemic Stent/Shunt (TIPSS)

TIPSS is done under fluoroscopy, digital subtraction, angiography and Doppler ultrasound. It can be done under local anesthesia. TIPSS is a minimally invasive means of creating a portosystemic shunt by creating a direct communication between the portal and hepatic venous systems within the liver parenchyma. A catheter is introduced through the jugular vein and, under radiologic control, positioned in the hepatic vein. From this point, the portal vein is accessed through the liver, the tract is dilated, and the channel is kept open by inserting an expandable metal stent, which is left in place.

II. MORTALITY AND MORBIDITY

Approximately 70 percent of all untreated patients die within the first year after their initial variceal bleeding. The causes of death include recurrent variceal haemorrhage, liver failure, hepatic encephalopathy, and progressive ascites and infections. The risk of death is maximal during the first few days after the bleeding episode and decreases slowly over the first 6 weeks. Mortality rates in the setting of surgical intervention for acute variceal bleeding are high.

Associated abnormalities in the renal, pulmonary, cardiovascular, and immune systems in patients with oesophageal varices contribute to 20-65% of mortality.⁽¹¹⁾

Prognosis:-

Untreated bleeding oesophageal varices that stop spontaneously almost always recur with high mortality. The cumulative data indicate that over 70 percent of patients experience recurrent variceal haemorrhages within one year of their index bleed.⁽¹²⁾

Rationale:-

Justification:-

Although bleeding oesophageal varices is a very common problem in Gezira state, there is only one unit for the diagnosis and management of this major problem. Urgent intervention is not available for diagnosis and management due to lack in number of trained staff. The cases must be booked for endoscopy for the next day, where there is no emergency endoscopic treatment for arresting the bleeding. There are no previous researches or published data from Gezira state in spite that the problem is common for decades. The need for proper management of acute bleeding oesophageal varices must be a national goal. Lack of medical education of patients and paramedics will worsen the prevention of the disease. Finally, financial constraints hamper the proper management, which needs support from the ministry of health or medical insurance.

Hypothesis:-

Bleeding oesophageal varices is a life threatening condition, which need urgent intervention by endoscopic or medical therapy. Bleeding varices can be treated with restricted number of sessions of sclerotherapy. The more sessions were done, the more complication rate will be. However, the patient may need surgical intervention after failure of endoscopic therapy. Band ligation service is limited in this center, because the cost is very high and it was added recently to the unit in WMTH.

Objectives:-**General Objective**

- To evaluate the outcome of the management of oesophageal varices in WMTH.
- To draw relevant conclusions and recommendations.

Specific objectives:

- To describe the clinical presentation of bleeding oesophageal varices.
- To determine the recurrence rate of bleeding episodes.
- To map the geographical distribution of the disease.

Literature Review:-**Prediction:**

Bleeding oesophageal varices (BOV) is an important life threatening condition, unfortunately there is very little published data in Sudan about the BOV and no data in Wad Madani.

Prediction of BOV is still a universal challenge, which if it gets the success, the mortality and morbidity rate will decrease. The recent literature is talking about the size of the varix, low platelet count, Child-Pugh class B/C and spleen diameter, as non-endoscopic predictors for the diagnosis and management of large grade varices ⁽¹²⁾. While other studies had different results with a conclusion that, Platelet count and spleen diameter ratio are not adequate to predict BOV in cirrhotics ⁽¹³⁾. A Study of recording endoscopic findings on Oesophageal Varices summaries that the factors which enabled an accurate prediction of bleeding, were the red whale marking and cherry-red spot of the red color sign category and blue varices of the fundamental color category with large varices ⁽¹⁴⁾. Urgent or emergency endoscopy is still the accurate diagnostic and interventional method, which is a non-invasive procedure ⁽¹⁵⁾. In spite of the role of computerized tomography (CT) being a good screening tool, it was found to have approximately 90% of sensitivity and 50% of specificity, otherwise one third of the patients would have been misdiagnosed by CT ⁽¹⁶⁾. Another useful method is 320-row multi-detector CT (MDCT) for predicting a risk of haemorrhage ⁽¹⁷⁾. Several clinical features of the patient are related to the risk of variceal haemorrhage. The most important risk factors for late rebleeding are the presence of large varices, overt signs of hepatic decompensation, the development of hepatocellular carcinoma and lack of alcohol abstinence. ⁽¹⁸⁾

Treatment:-**Endoscopic treatment:**

Some authors go with that the appropriate therapy for management of active variceal bleeding is acute injection sclerotherapy, which is a quick and simple technique for the control of active bleeding and could be followed by band ligation, which offers the prospect at only two or three session of therapy. ⁽¹⁹⁾

However, endoscopic band ligation causes statistically fewer local complications than sclerotherapy and achieves variceal eradication more rapidly. Ligation is a viable alternative to sclerotherapy and may have some advantages as a treatment for bleeding oesophageal varices. ⁽²⁰⁾

The most important advantage of endoscopic banding ligation was the reduction of the rate of rebleeding ⁽²¹⁾. On the basis of the results of a number of trials comparing sclerotherapy with band ligation, endoscopic variceal ligation has evolved to be the preferred first line modality for the endoscopic treatment of variceal bleeding. ⁽²²⁾

Variceal banding ligation is a safe and effective technique, which obliterates varices more quickly and with a lower rebleeding rate than injection sclerotherapy. ⁽²³⁾

Early recurrence and multiple recurrences of oesophageal varices are more likely in patients undergoing endoscopic ligation, compared to sclerotherapy. ⁽²⁴⁾

Other authors found that sclerotherapy combined with ligation offers no benefit over ligation alone⁽²⁵⁾. The higher complication rate with combination therapy does not warrant this approach.

Pharmacotherapy:

Drugs used in the treatment of variceal bleeding include vasopressin, terlipressin, somatostatin and octreotide. In the clinical studies to date, somatostatin is more effective than vasopressin. Administration of somatostatin in acute variceal bleeding is more effective and would improve the efficacy of sclerotherapy.⁽²⁶⁾

Therefore, the administration of vasoactive drugs as early as possible before emergency sclerotherapy is recommended for effective management of BOV.

Patients who had liver cirrhosis with varices should be given Beta blocker. If they are unable to take Beta blockers, the Band Variceal Ligation will provide prophylaxis. Those with medium to large varices can be treated with beta-blockers or band ligation to reduce their risk by 50%.⁽²⁷⁾

TIPSS:-

Treatment with a Trans jugular Intrahepatic Porto Systemic Shunt (TIPSS) consists of the vascular placement of an expandable metal stent across a tract created between a hepatic vein and a major intrahepatic branch of the portal system

Early use of TIPSS in patients with cirrhosis and variceal bleeding is associated with a significant reduction in treatment failure and in mortality.⁽²⁸⁾

Surgery:-

Surgical options at present are principally used in patients with continued bleeding despite endoscopic and/or pharmacotherapy. Low risk patients who are undergoing elective surgery, Distal splenorenal shunt (DSRS) is an acceptable alternative to Hassab's operation which is better preserved for emergency situations. Oesophageal transection should not be added to Hassab's operation because this increases the mortality.⁽²⁹⁾

Distal Splenorenal Shunt (DSRS) is typically done with splenopancreatic and gastric disconnection (ligation of the gastric veins and pancreatic veins (that drain into the portal vein) and complete detachment of the splenic vein from the portal venous system), as it improves the outcome.⁽³⁰⁾

Survival with TIPSS versus a DSRS is thought to be approximately similar, but still, it is an area of intensive research.

Both TIPSS and DSRS lead to decreased rates of variceal bleeding at the expense of hepatic encephalopathy; however TIPSS appears to have more shunt dysfunction and lead to more encephalopathy and bleeding. DSRS appears to be more cost effective than TIPSS.⁽³¹⁾

Liver transplantation:-

Orthotopic liver transplant (OLT) is the only treatment which corrects the portal hypertension and also corrects the liver failure. But it is not recommended in Schistosomal Portal hypertension as the liver cell function is preserved until late in the disease.⁽³²⁾

The American Association for the Study of Liver Diseases (AASLD) has issued the following guidelines for the management of variceal bleeding:

1. Patients with cirrhosis who survive an episode of active variceal haemorrhage should receive therapy to prevent recurrence of variceal haemorrhage (secondary prophylaxis).
2. Combination of nonselective beta blockers plus EVL is the best option for secondary prophylaxis of variceal haemorrhage.
3. The nonselective beta blocker should be adjusted to the maximal tolerated dose. EVL should be repeated every 1 to 2 weeks until obliteration with the first surveillance oesophago gastroduodenoscopy (OGD) performed 1 to 3 months after obliteration and then every 6 to 12 months to check for variceal recurrence.
4. TIPSS should be considered in patients who are Child A or B who experience recurrent variceal haemorrhage despite combination of pharmacological and endoscopic therapy. In centers where the expertise is available, surgical shunts can be considered in Child A patients.
5. Patients who need transplant should be referred to a transplant center.⁽³³⁾

Prophylaxis:-

The efficacy of the prophylaxis in the first variceal bleeding has not been clear yet. It is important to prevent bleeding and recurrence.

The prevention of the first variceal bleeding in experienced hands, and if the complication rate is low will be able to reduce the total mortality of the treated patients. ⁽³⁴⁾

Sclerotherapy is a very demanding and costly treatment, and is associated with frequent and serious side-effects. The probability of treatment failure is significantly higher in Child C patients with gastric varices. Alternative treatments should be considered for these patients. ⁽³⁵⁾

Prophylactic ligation did not significantly reduce the first episode of bleeding from oesophageal varices in cirrhotic patients with high-risk oesophageal varices. ⁽³⁶⁾

Anticipation of Recurrence:-

Abdominal blood pool Single-photon emission computerized tomography (SPECT) is performed using technetium-99m, which is non-invasive methods and useful for evaluating the therapeutic effect of sclerotherapy for predicting recurrence of bleeding. ⁽³⁷⁾ see the appendices.

Patients and Methods:-**Patients & Methods:**

This is a prospective hospital based clinical study which was conducted in 75 patients in WMTH. The study period started from January 2009 to December 2010(two years). Both males and females were included. They were classified in three groups. Group A with an age between 20-39 years, group B with an age between 40- 59 years and group C with an age more than 60 years. All patients with bleeding oesophageal varices were included in this study. Any patients with bleeding from gastric ulcer or gastric varices were excluded. An informed consent has been taken. History and physical examination was obtained for all patients. Laboratory investigations performed were: Complete blood count, upper gastrointestinal tract endoscopy, abdominal ultrasound, liver for all patients.

Additional data was collected through a questionnaire which included:

- General data
- Presentation
- Signs and symptoms
- Clinical Examination
- Investigations
- Medical or surgical management
- Outcome
- Recurrence of bleeding

These data were analyzed using computer, statistical package for social science (SPSS) version17, Microsoft excel and office 2007. The data was presented in percentage and table forms.

Study area:-

Wad Madani is an old city in central Sudan, known since 1489. It is the capital of Gezira State, central Sudan and is one of the major Sudanese cities with an estimated population of 312.000 people according to Census (2008). It is located about 186 km south of the capital Khartoum. This city is crowded during daytime hours due to influx of many citizens from the neighboring towns and villages of the Gezira State.

The WMTH was established in 1927. It consists of five departments of medicine, surgery, dermatology, ENT and orthopedics, with a capacity of 380 beds. The catchment area for WMTH includes five neighboring states which are:

1. Gezira State
2. Gadarif State
3. Blue Nile States
4. White Nile state
5. Kasala State

Gezira Centre for GIT Endoscopy and Endoscopic Surgery:-

It is considered the main center of the Gezira from the perspectives of gastrointestinal and laparoscopic surgery centers specializing in this area outside the national capital, which provides services to all patients of the Gezira and neighboring states. It was established in May 1994. It consists of two units:

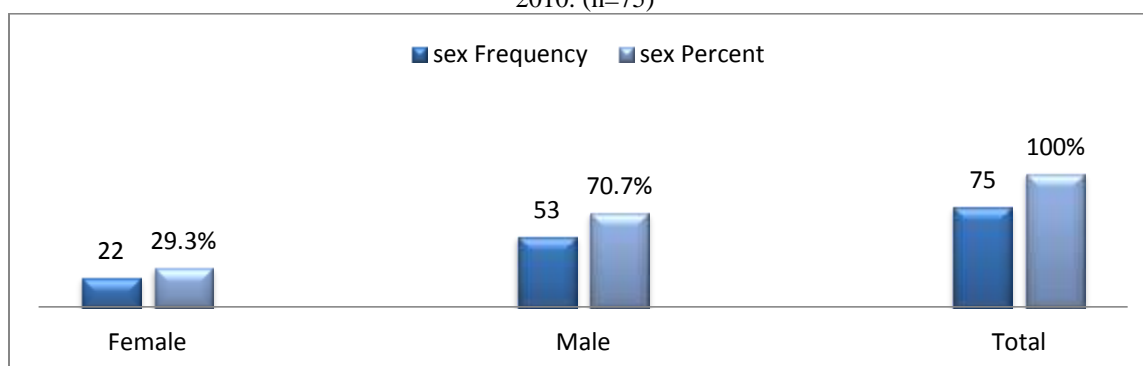
- **The GIT endoscopy unit:** provides the upper and lower GIT endoscopy as diagnostic tools. It provides sclerotherapy and band ligations for bleeding oesophageal varices. Sclerotherapy is injection of a chemical irritant into a vein to produce inflammation and eventual fibrosis and obliteration of the lumen, as for treatment of hemorrhoids and oesophageal varices. Endoscopic band ligation is the use of elastic bands to treat the varices. It is done as part of an [upper gastrointestinal endoscopy](#).
- **The laparoscopic unit:** provides diagnostic laparoscopy, laparoscopic cholecystectomy, appendectomy and high ligation of varicose veins.

Results:-

Sex distribution:

The total numbers of patients who had bleeding oesophageal varices were 75 patients (n=75). A number of 53 patients (70.7%) were males and 22 patients (29.3%) were females. The male to female ratio was (2.4:1.0). See fig (1).

Figure 1:- sex distribution for patients who had bleeding oesophageal varices in WMTH from Jan 2009 to Dec 2010. (n=75)



Age group:

The selected patients were classified in three groups. Group A has number of 32 young patients (42.7%). Group B has a number of 29 patients (38.7%). Group C has a number of 14 patients (18.7%) (See table 1). The selected patients presented with a mean age of 45.5 ± 16 . Most of the bleeders 32/75 (42.7%) were found in group A.

Table No (1):- (n=75) Age group Distribution

Age group	Frequency	percent
Group A (20-39)	32	42.7%
Group B (40-59)	29	38.70%
Group C (>60)	14	18.70%

Geographical Distribution:-

Most of the studied patients 68/75 (90.7%) were living in Gezira, while the rest of them were living in other neighboring state. Table (2).

Table (2):- The residence and percentage of studied patients.

Residence	Gezira	Elfao	Sinar	kasala	Total
No of patients	68	2	4	2	75
percentage	90.7%	2.7%	5.3%	2.7%	100%

Occupation:

A total number of 60 patients (80%) were farmers and the rest were other occupations.

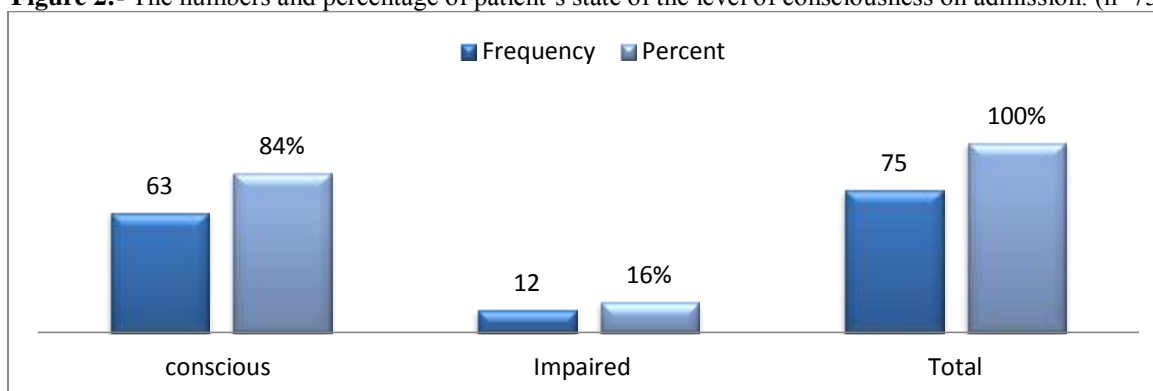
Table 3:- Patient occupation.

Farmers	Drivers	others
60 (80%)	3(4%)	12(16%)

Impaired level of consciousness:-

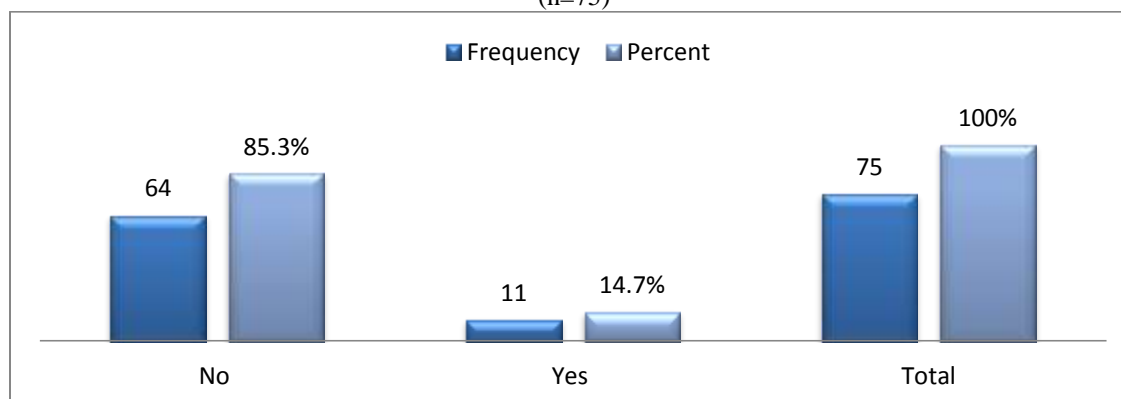
Examination of the higher functions of the studied patients showed that 63 patients (84%) were conscious on admission while the rest of them 12 patients (16%) were unconscious. Fig 2

Figure 2:- The numbers and percentage of patient's state of the level of consciousness on admission. (n=75)

**Symptoms of chronic liver disease:**

There were 11 patients (14.7%) presenting with symptoms of chronic liver disease in the form of itching, gynaecomastia, flapping tremor, hair loss and clubbing of fingers, while it was not seen in 64 patients (85.3%). Fig (3)

Figure 3:- The numbers and percentage of patients with symptoms of chronic liver disease in the studied patients. (n=75)

**Haematemesis And Melaena:-**

The clinical presentation of BOV was haematemesis in 25 patients (33.3%), while haematemesis and melaena were seen in 39 patients (52%) and melaena was seen only in 9 patients (12%). Table (4).

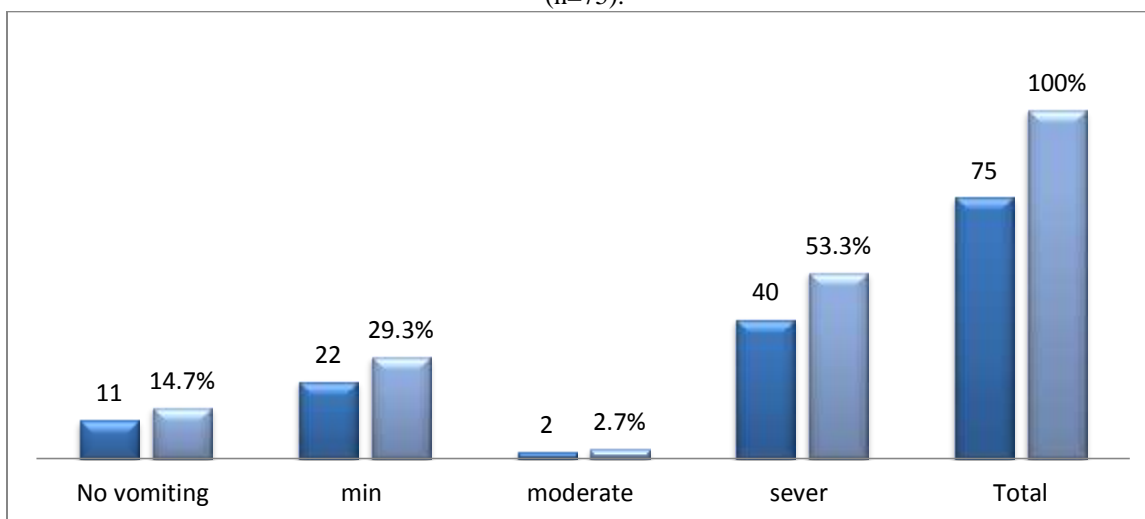
Table No (4):- The numbers and percentage of patients with BOV in WMTH from Jan 2009 and Dec 2010.

Presentation	Frequency	Percent
Haematemesis	25	33.3%
Melaena	9	12%
Both	39	52%

Amount and frequency of haematemesis:-

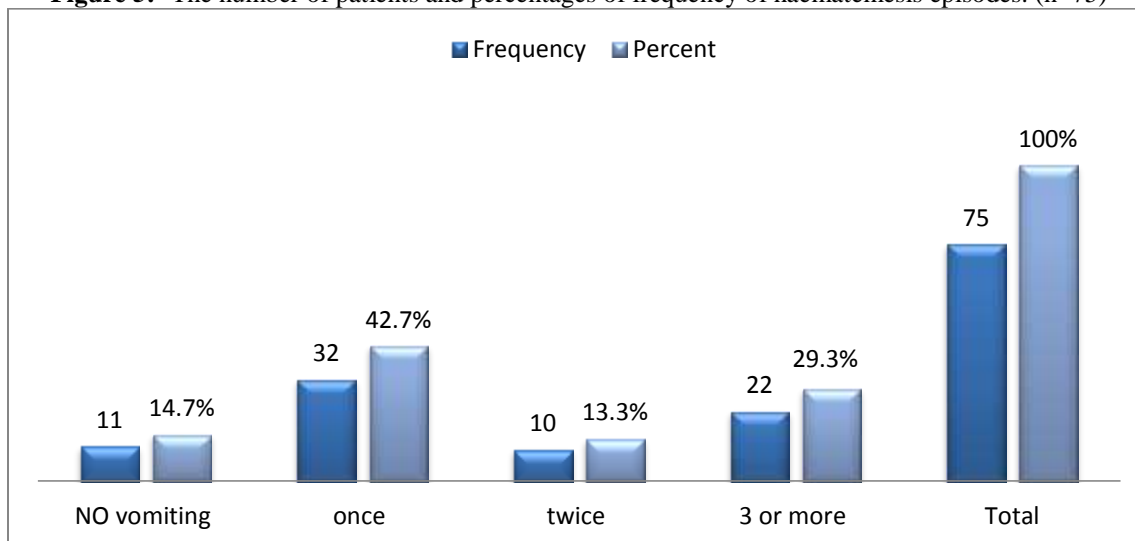
The amount of haematemesis in the studied patients was estimated as follows : (One cup "250 ml" = minimal, Two cups = moderate, Three or more cups = severe). While the frequency was calculated by recording the numbers of bleeds per episode. A total number of 40 patients (53.3%) had a severe bleeding and 22 patients (29.3%) had a minimal bleeding. Two patients had moderate bleeding while 11 patients (14.7%) did not present with haematemesis. (fig4).

Figure 4:- The numbers and percentage of patients and estimated amount of haematemesis in patients with BOV. (n=75).



A number of 32 patients (42.7%) bled for once, while 22 patients (29.3%) had more than three episodes and 10(13.3%) had two bleeding episodes. Fig(5).

Figure 5:- The number of patients and percentages of frequency of haematemesis episodes. (n=75)

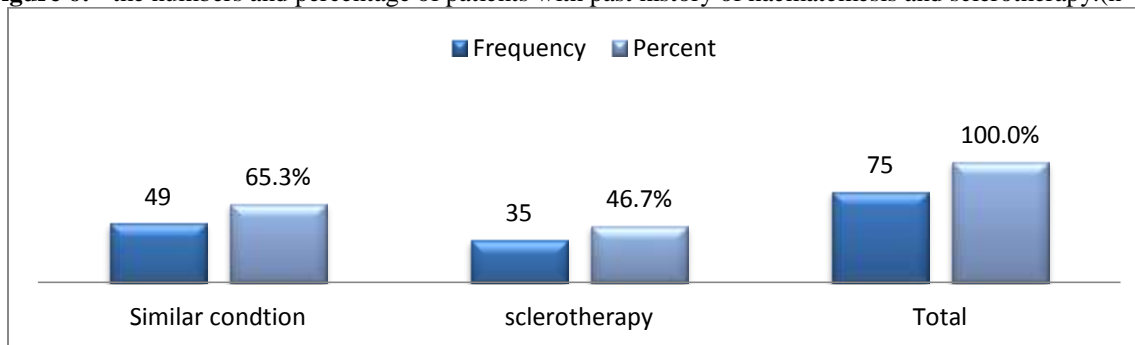


Abdominal pain and distention:-

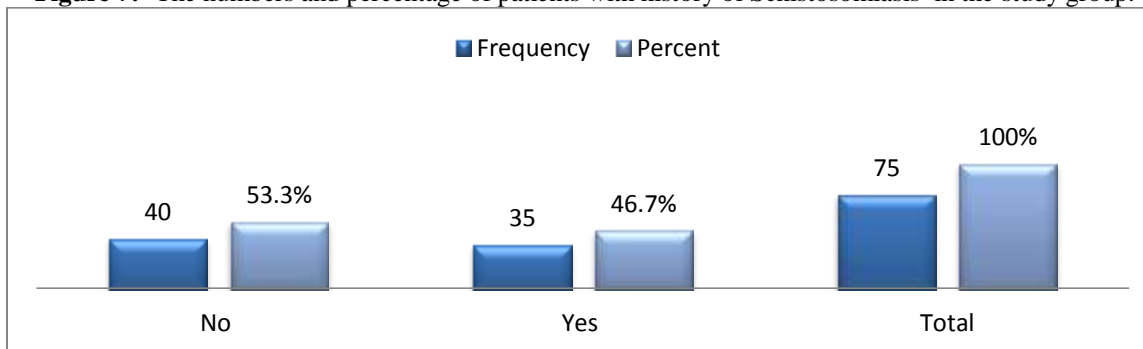
Abdominal discomfort and pain which was felt in the right hypochondrium or under the right lower ribs (front, side, or back) and in the epigastrium or the left hypochondrium, was encountered in 19 patients (25.3%). The same number had abdominal distention.

Past medical history and sclerotherapy:-

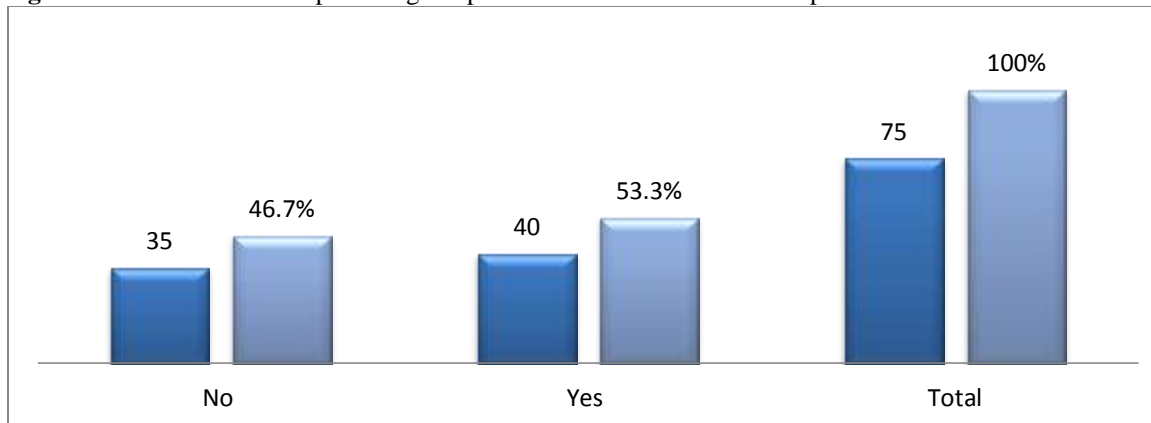
The past medical history of the studied patients showed that 49 patients (65.3%) had a previous history of haematemesis or melaena which was treated by pharmacotherapy, sclerotherapy or surgery. The number of patients who had history of sclerotherapy or repeat sclerotherapy was 35 patients (46.7%) as once or more. Fig (6).

Figure 6:- the numbers and percentage of patients with past history of haematemesis and sclerotherapy.(n=75)**Schistosomiasis:-**

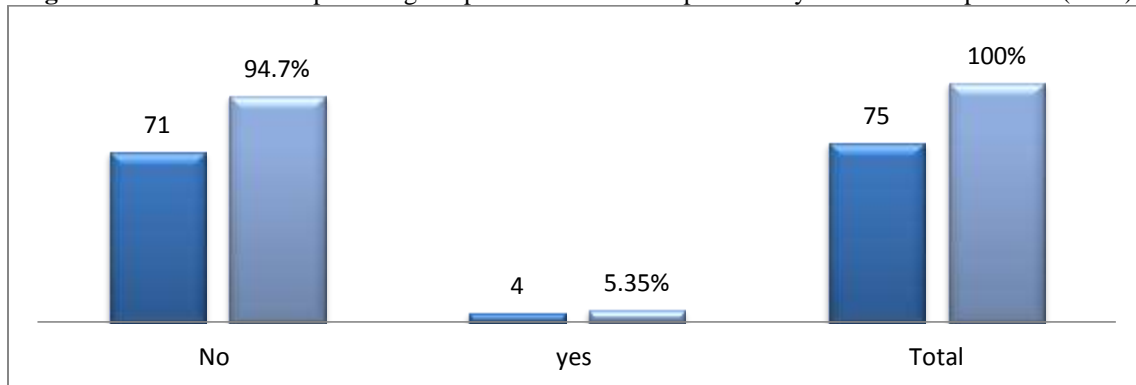
Regarding the past history of schistosomiasis, a number of 35 patients (46%) remembered an attack of schistosomiasis, while 40 patients (53.3%) were not sure of it. Fig (7).

Figure 7:- The numbers and percentage of patients with history of Schistosomiasis in the study group.**History of Blood Transfusion:-**

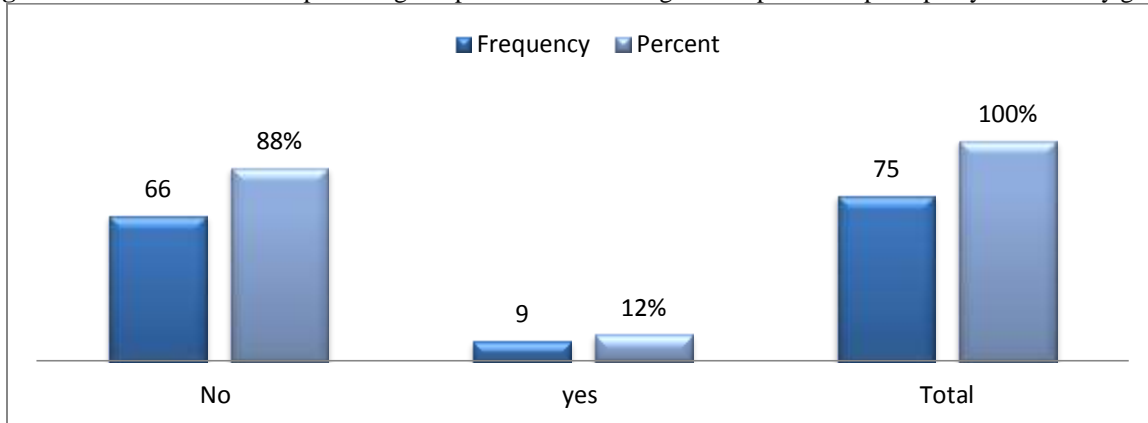
The studied patients had a past history of blood transfusion in 40 patients (53.3%) during their previous attacks of haematemesis. Fig(8).

Figure 8:- The numbers and percentage of patients who were transfused in previous attacks of haematemesis.**History of surgical intervention:-**

A total number of 4 patients (5.3%) underwent splenectomy as an elective procedure and had history of BOV and presented again with the same condition. There was no history of TIPSS or Portosystemic anastomosis.

Figure 9:- the number and percentage of patients underwent splenectomy in the studied patients. (n=75)**Signs of Hepatic encephalopathy:-**

The signs like foetor hepaticus, poor concentration, confusion, slurred speech and agitation, were found in 9 patients (12%) while the rest were normal

Figure 10:- The numbers and percentage of patients who had signs of hepatic encephalopathy in the study group.**Pallor and Jaundice:-**

There were 61 patients (81.3%) who were clinically found to be pale and 9 patients (12%) were jaundiced.

Hypotension:-

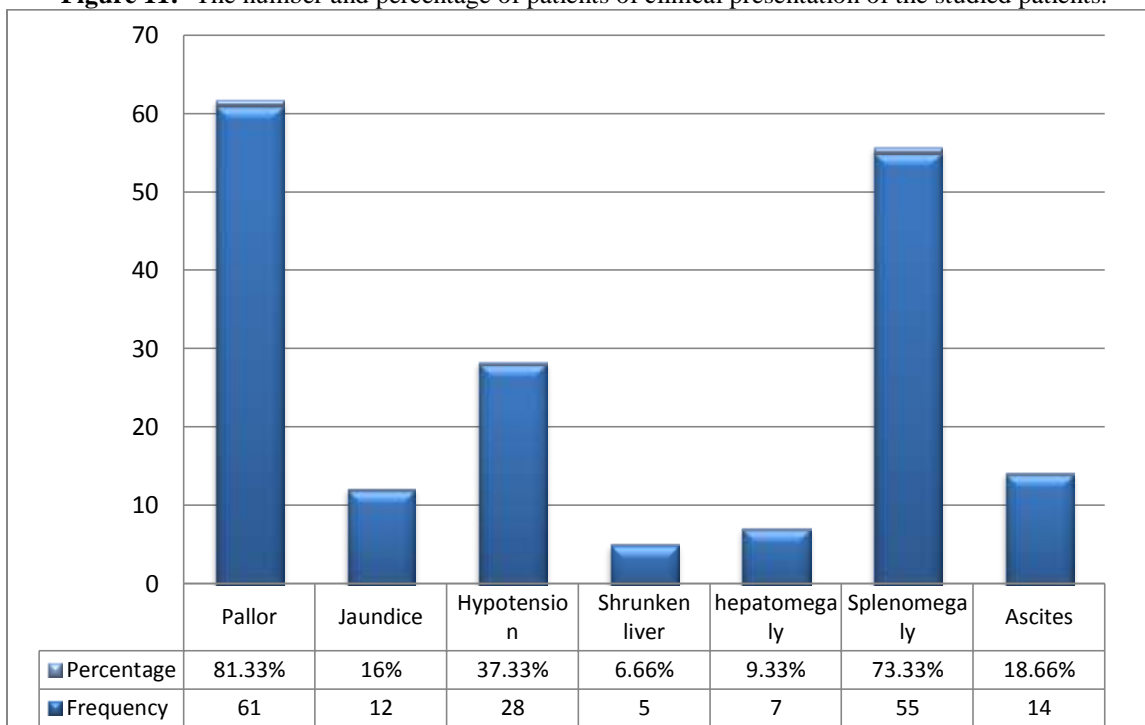
There were 28 patients (37.3%) who were found to be hypotensive and collapsed and needed resuscitation. The rest of the studied patients were hemodynamically stable.

Size of liver and spleen:-

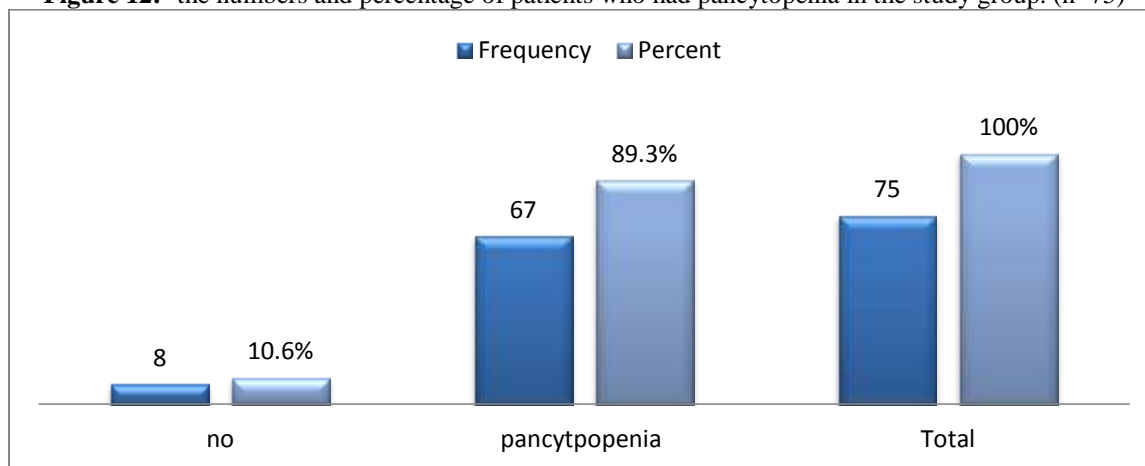
There were 55 patients (73.3%) who had splenomegaly on presentation and hepatomegaly was detected in 7 patients (9.3%), while 5 patients (6.7%) were found to have a shrunken liver.

Ascites:-

During the abdominal examination, ascites was demonstrated in 14 patients (18.7%). Fig (11).

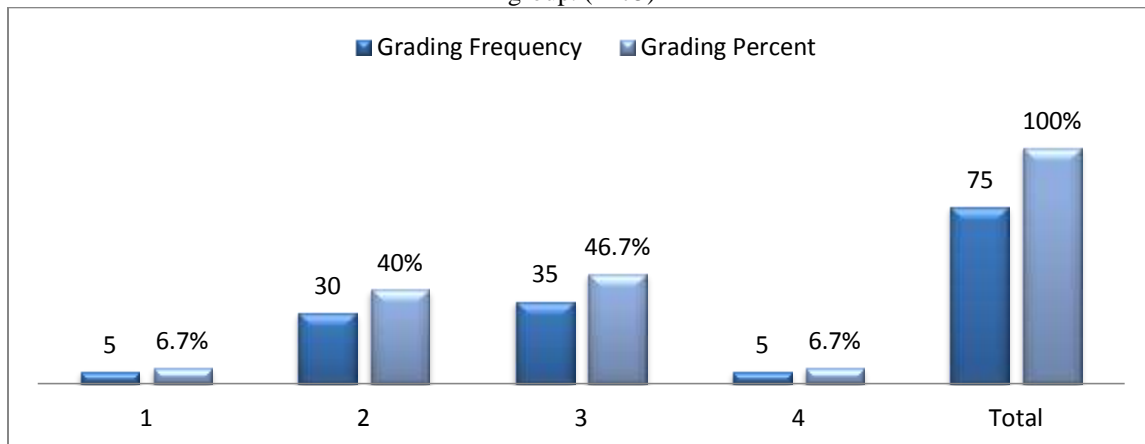
Figure 11:- The number and percentage of patients of clinical presentation of the studied patients.**CBC and Pancytopenia:-**

It was found that most of the patients had pancytopenia on their peripheral blood picture, with a number of 67 patients (89.3%).

Figure 12:- the numbers and percentage of patients who had pancytopenia in the study group. (n=75)**Grading Of Oesophageal Varices:-**

As shown in the table 13.

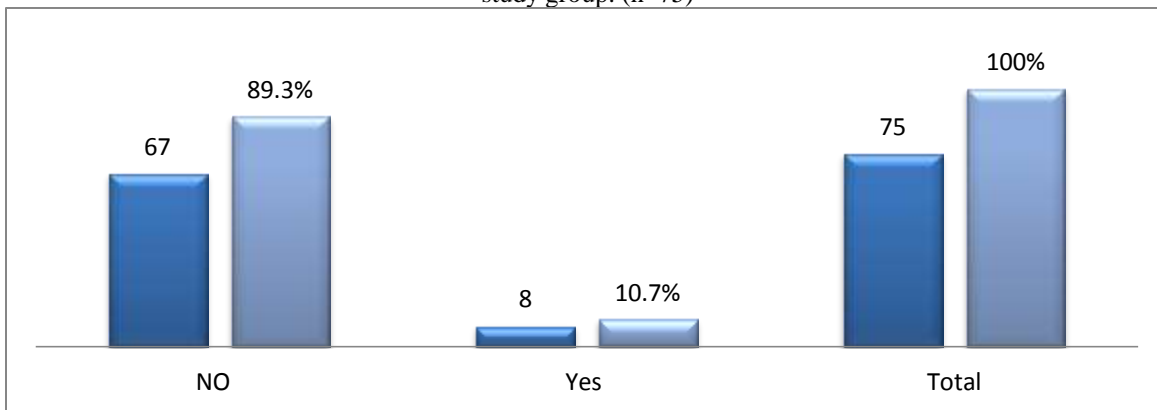
Figure 13:- The numbers and percentage of patients with respect to the grades of oesophageal varices in study group. (n=75)



Surgical treatment:-

The total numbers of patients, who underwent splenectomy as an elective procedure were 8 patients (10.7%). Fig (14).

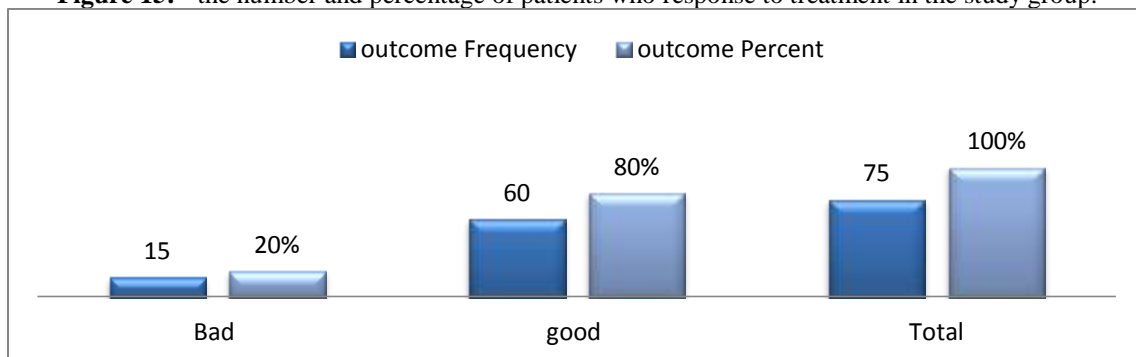
Figure 14:- The numbers and percentage of patients who underwent splenectomy as an elective procedure in the study group. (n=75)



Outcome of management:-

The response to the medical treatment, endoscopic and surgical intervention was observed and categorized as good or bad which is shown in figure 17. A number of 60 patients (80%) responded to medical treatment while 15 patients (20%) needed more resuscitation, transfusion and repetition of endoscopic management.

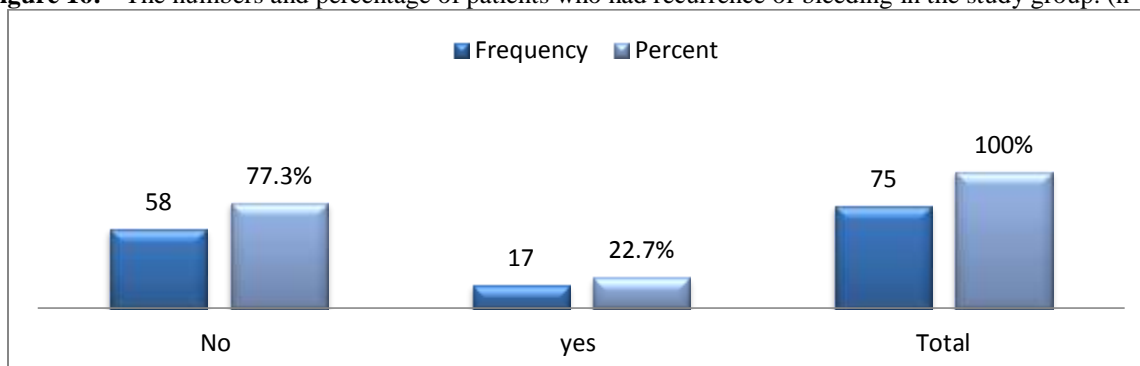
Figure 15:- the number and percentage of patients who response to treatment in the study group.



Recurrence of Bleeding:-

Patients who discharged in good condition were followed up for recurrence of bleeding until the end of the study period. There were 17 patients (22.7%) who developed recurrence of bleeding during the study period.

Figure 16:- The numbers and percentage of patients who had recurrence of bleeding in the study group. (n=75)

**Sex and Grades of oesophageal varices:**

The main grades which bleed in the studied patients were grade II and III.

Table No (5):- the numbers and percentage of patients with relation to the sex and grades.

		grade				Total
		I	II	III	IV	
sex	Female	2 (2.7%)	7 (9.3%)	10 (13%)	3 (4%)	22 (29.3%)
	Male	3 (4%)	23 (29.3%)	25 (33.3%)	2 (2.7%)	53 (70.6%)
Total		5 (6.6%)	30 (40%)	35 (46.7%)	5 (6.6%)	75 (100%)

Discussion:-

Bleeding oesophageal varices are associated with a significant mortality and morbidity. Up to 30% of bleeding episodes are fatal, while in this study it was seen in 6% of patients after receiving treatment in the form of pharmacotherapy and endoscopic treatment, which is comparable to Mudawi study (3.5%).⁽³⁸⁾

In this study it was found that most of the patients were farmers (80%) and living nearby the Blue Nile and its irrigating canal system. According to WMTH statistics, in the last eight years the total number of patients with oesophageal varices were 1140 and 947 of them were from Gezira state accounting for 83% of patients, which is an endemic area for schistosomiasis. In this study 75 patients presented with bleeding oesophageal varices. The mean age was 45.5±16 year. Male to Female ratio was 2.4:1.0. This male preponderance can be explained by the fact that males are more exposed than females due to agricultural occupational hazards.

The commonest etiology of the liver disease in the studied patients was schistosomiasis which was seen in 35 patients (46.7%). Alcohol consumption was not common in this study group. In other endemic areas schistosomiasis accounts for 22% as a cause of PPF⁽³⁹⁾. There is therefore an increase need for schistosomiasis control programs, in addition to environmental and behavioral modifications. With respect to trials of diagnosis of oesophageal varices which was done by Homeida, it was found asymptomatic in villages of Gezira in contrast to other studies where 96% were symptomatic.⁽⁴⁰⁾

Another significant finding was that 45 patients (65.3%) had previous episodes of oesophageal bleeding. We noticed that there is a high recurrence after management in 35 patients (46.7%) who had previous sessions of sclerotherapy. In this study 8 patients (10.7%) underwent splenectomy as a treatment of hypersplenism and pancytopenia, which are elective interventions. No surgical trials for active BOV were tried, unlike El Masri, who performed 113 operations with a recurrence rate of 20%⁽⁴¹⁾.

Bleeding related complications included vascular collapse, hypotension and encephalopathy. Signs of hepatic encephalopathy like foetor hepaticus, poor concentration, confusion, slurred speech and agitation were found in nine patients (12%).

A total number of 61 patients (81.3%) had pallor and 28 patients (37.3%) were found to be hemodynamically unstable, which means that there were to have a significant loss of blood. More than third of patients presented in a state of shock. The size of the spleen and the platelet count are not good parameters to predict oesophageal varices bleeding in cirrhotic patients, which is consistent with the same result of Matto's study⁽⁴²⁾. In this study bleeding oesophageal varices is highly related to splenomegaly and pancytopenia, where they accounted for 73.3% and 89.3% respectively, however it needs more effort to demonstrate a cause relationship regarding these factors. Others failed to prove this relation with low percentage for thrombocytopenia and splenomegaly (55% and 45%) as compared to this study.⁽⁴³⁾

The percentage of palpable spleens in patients with hepatic cirrhosis varies in Published reports from 32 to 42%, while it reached up to 73.3% in this study due to hypersplenism⁽⁴⁴⁾.

Unfortunately ultrasound was poor in detecting the grades of PPF, diameter of portal veins, splenic veins and thrombosis. It was difficult to standardize the reporting of the endoscopic findings. In the course of reviewing the medical charts of the selected patients, some charts did not contain a complete report of biochemical tests to satisfy Child's Classification parameters. Some were not requested because the patients were transfused before taking blood sample in aim of urgent resuscitation.

Studies of the size and wall thickness of oesophageal varices have shown that the risk of bleeding in relation to these factors, this study showed that mainly grade II and III were the cause of bleeding, compared with Gasim study which showed that the majority of patients had large varices grade III (52.7%) and grade IV(14.3%).⁽³²⁾ There were about 60 patients (80%) who responded to the medical treatment, in the form of resuscitation, Beta blockers, vasoactive drugs, transfusion, and prophylactic antibiotic and later sent for sclerotherapy. Few cases underwent band ligation. The response to treatment was assessed by the improved clinical status, cessation of bleeding and absence of melaena. Good response was achieved in 80% of cases, while 20% of patients needed repetition of resuscitation and sclerotherapy and ligation. The recurrence rate in this study was 17 patients (22.6%), while it was seen in 32% in Mudawi's study.⁽³⁸⁾

Conclusions & Recommendations:-

Conclusions:-

- The main presentation of bleeding oesophageal varices is haematemesis, however it can present with melaena.
- Pancytopenia and splenomegaly are highly associated with bleeding oesophageal varices.
- This problem is affecting mainly young age groups.
- The male groups are exposed to this problem because of their agricultural occupational hazards.
- We don't have any experience in surgical intervention in this state in the form of TIPS or portosystemic anastomosis.
- The main cause for oesophageal varices was schistosomal portal hypertension.
- The bleeding from oesophageal varices was mainly from grade II and III.
- In spite of a significant recurrence in this study, still the endoscopic intervention is effective in treating bleeding oesophageal varices.

Recommendations:-

- Upper endoscopy should be performed for diagnosis and possible treatment in patients with significant upper gastrointestinal bleeding.
- It is recommend that bleeding oesophageal varices should be treated by endoscopic treatment. Band ligation should be used for subsequent elective endoscopic treatment sessions.
- It is recommended that salvage treatment (TIPSS or surgery) should be available if other measures fail to control the bleeding from oesophageal varices.
- It is recommended that more staff should be trained to deal with urgent sclerotherapy and band ligation.
- It is recommended to increase support for schistosomiasis control in addition to environmental and behavioral modifications.
- It is recommended to establish more centers which can cover the high number of patients

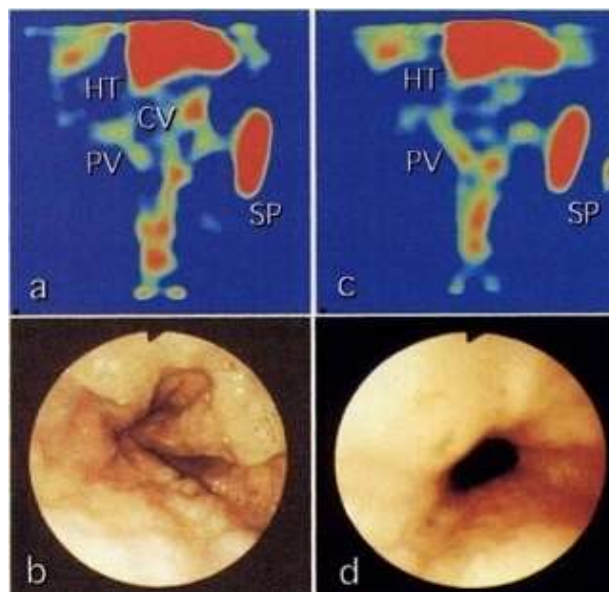
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Appendices:-

A1: SPECT and endoscopic findings for oesophagus of 58-y-oldman. Before EIS, coronary vein was detected (A) (HT = heart, SP = spleen, PV = portal vein , CV = coronary vein), and blue F2 varices with positive red color sign were observed (B). Coronary vein disappeared after EIS (C), and varices did not reappear during study period(D)



A (2). Surgical Procedures for Esophageal Varices.
A. Direct variceal obliteration
1. Variceal suture ligation
a. Transthoracic
b. Transabdominal
2. Esophageal transection and reanastomosis
a. Suture technique
b. Staple technique
3. Variceal sclerosis
a. Oesophagoscopy
b. Transhepatic
4. Variceal resection
a. Oesophagogastrectomy
b. Subtotal oesophagectomy
B. Reduction of variceal blood flow and pressure
1. Port systemic shunts
a. End-to-side
b. Side-to-side
1. Side-to-side portacaval
2. Mesocaval
3. Central splenorenal
4. Renosplenic
2. Selective shunts
a. Distal splenorenal (Warren)
b. Left gastric vena caval (Inokuchi)
3. Reduction of portal blood flow
a. Splenectomy
b. Splenic artery ligation
4. Reduction of proximal gastric blood flow
a. Oesophagogastric devascularization
b. Gastric transection and reanastomosis (Tanner)
5. Stimulation of additional port systemic venous collaterals
a. Omentopexy
b. Splenic transposition
C. Measures to preserve hepatic blood flow after portacaval shunt
1. Arterialization of portal vein stump

Definition:-

Schistosomiasis :(also known as bilharzia, bilharziosis or snail fever) is a parasitic disease caused by several species of trematodes("Platyhelminth" infection) ("flukes"), a parasitic worm of the genus Schistosoma.

Haematemesis: vomiting of bright red blood, indicating rapid upper GI bleeding, commonly associated with esophageal varices or peptic ulcer

Cirrhosis is a chronic degenerative disease in which normal liver cells are damaged and are then replaced by scar tissue.

Sclerotherapy: injection of a chemical irritant into a vein to produce inflammation and eventual fibrosis and obliteration of the lumen, as for treatment of hemorrhoids and oesophageal varices.

Varices: A type of varicose veins that develops in veins in the linings of the esophagus and upper stomach when these veins fill with blood and swell due to an increase in varicose blood pressure in the portal veins.