

Patients' knowledge assessment regarding factors aggravating esophageal variceal bleeding at a university hospital in Egypt

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Abstract

Background: Portal hypertension and consequent variceal hemorrhage is one of the most devastating complications of chronic liver disease and is the most common Cause of mortality and morbidity in patients with cirrhosis. Aggravating factors assessment has become an integral part in management of those patients to overcome their misconceptions. **Aim:** Assess patients' knowledge about factors aggravating esophageal variceal bleeding (EVB). **Research question:** What is the patients' knowledge about factors aggravating EVB? **Research design:** A descriptive exploratory design was utilized to answer the research question. **Sample:** A convenient sample of 110 adult male and female patients with esophageal varices receiving esophageal ligation and/or injection, admitted to Gastrointestinal Endoscopy Unit and all medical departments at one hospital affiliated to Cairo University were recruited in the study. **Tools:** Two tools were designed and used by the researcher to collect data relevant to the study; first tool is structured questionnaire regarding demographic and illness-related data sheet, and the second one is patients' knowledge assessment questionnaire of EVB aggravating factors. **Results:** The study results revealed that (61.8%) of the study subjects' age ranged from 40 < 60 years old, (65.5%) of the study subjects were males, (79.1%) of them had lack of knowledge regarding different factors aggravating EVB, the most common one was high risk related nutrition followed by high risk related medications then other factors represent (76.4%, 68.2% & 66.4%) respectively. **Conclusion:** Diet and medications are acknowledged as the most important factors aggravating esophageal variceal bleeding among study subjects. **Recommendation:** A written instruction about prohibited and allowed drugs, nutrition, and allowed physical activities for patients with esophageal varices is recommended.

Key words: Assessment, esophageal variceal bleeding, aggravating factors.

1. Introduction

Esophageal variceal bleeding (EVB) remains a major complication of portal hypertension in patients with liver cirrhosis. Varices are varicosities that develop from elevated pressure in the veins that drain into the portal system. They are prone to rupture and often are the source of massive hemorrhage from upper GI tract and the rectum. In addition blood clotting abnormalities often seen in patients with severe liver disease, increase the likelihood of bleeding and significant blood loss, approximately 20–50% of cirrhotic patients will eventually bleed during the period of follow up, with a mortality rate of 48% from first variceal hemorrhage. About 70% of bleeding episodes occurs within two years of diagnosis (Jalan, 2012; Vivek, Payal, & Mouen, 2013).

The normal portal venous pressure is 2 to 6 mm Hg, when these veins experience increase in pressure exceed 10 mmHg, they become distended with blood, the vessels enlarge, and varices develop. The varices tend to bleed when the portal venous pressure reach 12 mmHg. The most common sites for the development of these varices are the esophagus and the upper portion of the stomach (Lou Sole, Klein, & Moseley, 2013). Esophageal variceal bleeding is the commonest cause of acute upper gastrointestinal bleeding in Egypt. It represents a catastrophic consequence of portal hypertension due to high prevalence of schistosomiasis and viral hepatitis with high incidence of morbidity and mortality despite modern therapeutic modalities making a major public health problem in Egypt. It accounts for 75% of all upper gastrointestinal bleeding (UGIB) and responsible for 20% of deaths among Egyptian patients between the ages of 35 to 75 years, while in the Western countries it accounts for 30% of all upper gastrointestinal bleeding (Sallam 2007, and Williams & Hopper, 2011)

Factors that contribute to EVB are any conditions that increase the abdominal venous pressure such as muscular exertion from lifting heavy objects, straining at stool, sneezing, coughing and vomiting. Esophagitis, irritation of vessels by poorly chewed foods or irritating fluids, ingestion of foods high in roughage; and reflux of stomach content can also precipitate for EVB (Williams & Hopper, 2011; White, et al, 2013). Medications like NSAIDs that erode the esophageal mucosa or interfere with cell replication also may contribute to bleeding, NSAIDs usage is said to be the second most common etiologic factor for causing GI bleeding and are frequently used in higher doses for various conditions such as acute and chronic pain, aspirin is used in smaller doses to prevent cardio-vascular events for its antiplatelet effect. Some commonly used NSAIDs are diclofenac, ibuprofen, piroxicam, naproxen, and indomethacin (De Berardis, 2012)

Endotoxemia and bacterial infection are frequent in patients with cirrhosis, as resistance to infection is lowered; they alter systemic and splanchnic hemodynamics, worsen coagulation disorders, impair liver function and thus may induce variceal bleeding. The most frequent bacterial infections seen are: urinary tract infection

(mostly *E. coli* or *Klebsiella*), spontaneous bacterial peritonitis (gram-negative bacilli and aerobic gram-positive cocci), respiratory tract infection, and primary bacteraemia (Boursier, Asfar, Joly-Guillou & Calès, 2007). The risk of infection is higher for patients undergoing invasive procedures, such as endoscopy. Bacteremia has been reported to occur in up to 50% of patients undergoing sclerotherapy and 25% of patients undergoing endoscopic variceal ligation. Currently endoscopic variceal ligation is the standard therapy to treat esophageal varices. (Cardiol, et al. 2008, Mönkemüller, Wilcox, & Muñoz-Navas, 2010, and Dell'era & Bosch 2013).

The initial management of bleeding esophageal varices consists of treatment to restore hemodynamic stability through blood transfusion followed by variceal eradication. This can be done endoscopically by either injection sclerotherapy (injecting a sclerosing agent that cause thickening and closing of the dilated vessels) or band ligation (banding the varices with rubber bands). Banding has been introduced recently for the long term management of varices as it has fewer complications than sclerotherapy and similar efficiency in controlling bleeding. Balloon tamponade are used only to stop active bleeding in certain patients until eradication treatment is commenced (Rauchfuss, & Settmacher, 2011).

In an actively bleeding patient, vasoactive medications (Vasopressin & Somatostatin) are administered initially because they can be obtained and administered quicker than other therapies. Vasopressin (Pitressin) may be the initial mode of therapy in urgent situations because it produces constriction of the splanchnic arterial bed, splanchnic circulation comprises the arterial blood supply and venous drainage of the entire GI tract from the distal esophagus to the midrectum, including the liver, thus reducing the inflow into the portal system and therefore the portal pressure. Propranolol (Inderal) and nadolol (Corgard), beta blocker agents that decrease portal pressure, are the most common medications used both to prevent a first bleeding episode in patients with known varices and to prevent rebleeding (Villanueva, et al 2009; Dhiraj, 2012).

Patients who don't respond to endoscopic management will be treated with a Transjugular Intrahepatic Portosystemic Shunt (TIPS). It is non surgical treatment for recurrent variceal bleeding. Placement of the shunt is performed with the use of fluoroscopy. A stainless steel stent is placed between the hepatic and portal veins to create a portosystemic shunt in the liver and decrease portal pressure. Decreasing portal pressure decreases pressure within the varix, thereby decreasing the risk for acute EVB (Boyer & Haskal, 2009). Therefore, nursing assessment is of primary importance and crucial to gain as much information as possible about patients' health problems. Thus, knowledge assessment for those patients should be an integral part of the treatment process and part of the nursing role. Hence, the current study's aim is to assess patients' knowledge about factors aggravating EVB.

1.1. Significance of the study

It has been observed from the researcher's clinical experience in the clinical training that many patients having esophageal varices were admitted with sudden attack of hematemesis which may be fatal. Patients who were admitted to El Manial University hospital with esophageal varices from 2009 to 2011 were 12247, and 977 patients were received esophageal band ligation and 11270 patients were received sclerotherapy (Statistics and Medical records department, Main Management Department, Cairo University Hospitals, 2012). Patients having esophageal varices always need frequent follow up and adherence to instructions given by doctors and nurses regarding their diet, medication and activities to prevent life threatening re-bleeding. Therefore, the current study is carried out in order to assess patients' knowledge about factors aggravating esophageal variceal bleeding.

1.2. Aim of the study:

The aim of this study was to assess patients' knowledge about factors aggravating esophageal variceal bleeding?

2. Subjects & Methods

To fulfill the aim of this study, the following research question was formulated:

Q: What is the patients' knowledge about factors aggravating esophageal variceal bleeding?

2.1. Research design:

A descriptive exploratory research design was utilized to achieve the purpose of the study and answer the research question. A descriptive exploratory research is a type of research that provides an accurate portrayal of the characteristics of a particular individual, situation, or group. This study is a mean of discovering new meaning, describing what exists, determining the frequency with which something occurs, and categorizing information (Kotler & Armstrong, 2011).

2.2. Setting:

This study was conducted in gastrointestinal endoscopy unit and all medical departments at a Cairo University Hospital in Egypt.

2.3. Subjects:

A convenient sample of 110 adult male and female patients with esophageal varices admitted to gastrointestinal endoscopy and all medical departments at a Cairo University Hospital and scheduled for esophageal band ligation and/or sclerotherapy were recruited to the study. The subject size of 110 participants will be calculated using a power analysis. A Power of .80 ($\beta = 1 - .80 = .20$) at alpha .05 (one-sided) will be used

as the significance level because these level have been suggested for use in the most areas of behavioral science research (Ellis, 2010). In addition, the medium effect size (0.5) is conventional effect size in behavioral science that will be used when the new area of research and when instruments have not well been tested (Murphy & Myers, 2004). Although the minimum number of 100 subjects will be required by power analysis, the researcher will aim to obtain 110 subjects in this study because ten percent of non-response rate will be expected to be lost from the subjects.

2.4. Tools:

Data of the current study were collected using two tools that were constructed by the researcher through extensive reviewing of the recent available literature of the various aspects related to this issue.

Tool I: Structured questionnaire consists of two parts:

- A) Demographic characteristics questionnaire: covered the following five variables: age, gender, marital status, place of residence and occupation.
- B) Medical related data questionnaire including 28 questions were grouped into three items: 1- Epidemic causes of esophageal varices. 2- Ways of detection of EV, frequency of hospital admissions and methods of management. 3- The smoking habit and co- morbid diseases.

Tool II: Patients' knowledge assessment questionnaire of EVB aggravating factors, including 25 questions covering three main sections: *Section one*: concerned with patient's knowledge about high risk related medications. *Section two*: dealing with patient's knowledge about high risk related nutrition. Such as citrus food, special dietary regimen, number of daily meals, suitable time for having dinner and irritating fluids. *Section three*: asked about patient's knowledge regarding exercises and other factors aggravating EVB, such as lifting heavy objects, constipation, coughing and sneezing.

The scoring system

According to tool II, the questionnaire consisted of 21 closed ended questions and 4MCQs questions; the answer of closed ended questions was either Yes (correct) =1 or No (incorrect) = 0 and the MCQs answer was matched as Correct = 1 or Incorrect = 0. The total score of the questionnaire ranged from 0 – 25. Less than 60% is considered low level (less than 15 correct questions from 25 questions), 60% to 75% is considered average level (from 16 to 19 correct questions from 23 questions), and more than 75% is considered high level (from 20 to 25 correct questions from 25 questions).

Validity and reliability

Tools were reviewed by a panel of seven experts' staff in medical surgical nursing specialty, Faculty of Nursing - Cairo University. Each one of the experts in the panel was asked to examine the instrument for face and content validity. Modifications were carried out according to the panel judgment. According to reliability the instrument was tested and demonstrate good internal reliability with Cronbach's Alpha (tool II) = 0. 81.

2.5. Ethical Consideration

An official permission to conduct the study was obtained from the Ethical Committee at the Faculty of Nursing– Cairo University Also another official permission was taken from the hospital authorities of El Manial University Hospital. In addition during the phase of data collection; the investigator obtained a written consent from each patient agreed to participate in this study after informing him/her about the aim of the study and emphasizing that participation in the study is entirely voluntary and that they have the right to withdraw at anytime without giving any reason. Anonymity and confidentiality were assured through coding the data.

2.6. Pilot Study

Pilot study was conducted on 11 patients to test the clarity and applicability of the data collection instruments, the tool was tested for appropriateness, content, wording, and order; the required modification was done and the final format was developed according to the results of the pilot study. The pilot study subjects were excluded from the main study subject.

2.7. Procedure

Once official permissions were granted to proceed with the proposed study, the pilot study on 11 patients was done. Then study subject who met the inclusion criteria was interviewed individually for about 15 minutes to explain the nature and purpose of the study followed by taken a written consent from the patients who accepted to participate in the study. After that, the investigator had collected data utilizing the constructed study tools which include demographic data, medical related data and patients' knowledge assessment questionnaire through a structured interview at the waiting room before endoscopy procedure for about 20 to 30 minutes for each patient; about 5 to 10 patients were interviewed daily, through two days / week. The educated patients are instructed to fill out the tools but most of them preferred that the investigator ask them all the questions as well as patients who didn't read and write and they give the answers on it and any clarifications or concerns about EV were answered by the investigator. After data collection, data was coded, analyzed then tabulated under the direction of a statistician to obtain results to answer the research question.

2.8. Data Analysis:

Data analysis was carried out using the Statistical Package for Social Sciences (SPSS), version 17. All data entries were checked for accuracy against the original raw data of each patient by the investigator. A probability level of 0.05 & 0.01 was adopted as the level of significance for all statistical tests done. The following statistical tests were used according to the number of participant patients: (a) Frequency and percentage distribution for all variables, (b) Mean and Standard Deviation to describe the central tendency and measure of dispersion for some variables.

3. Results

Study findings will be presented in relation to demographic characteristics and medical related data of the study subjects and the knowledge of factors aggravating EVB among the study subjects (patients with esophageal varices).

Table (1) showed that 61.8% of the study subjects' age ranged from 40- < 60 years old, with a mean age of 54.9 ± 9.88 years. The table also revealed that 65.5% were males whereas 34.5% of them were females. Concerning patient's occupation, 51.9% of the study subjects were farmers, whereas 30.9% were housewives and 12.7% occupying public work. In relation to marital status, 77.3% were married, while 18.2% were widow. Regarding residence, 59.1% of the study subjects lived in rural areas and 40.9% in urban areas.

It was observed in table (2) that 44.6%, 18.2%, 10.9% of the study subjects presented by hematemesis & melena, hematemesis, and melena respectively, while 26.4% of them detected EV during routine endoscopy. In relation to amount of blood in last bleeding 51.8% of the study subjects bled about two cups and more, while (16.4%) bled about one cup (200 cc). Regarding patients' admission 30% admitted one time, 16.4% admitted two times, while 14.6% admitted three times and more. Regarding blood transfusion 80.6% of the study subjects received blood. Concerning management of EV 59.1%, 22.7%, 18.2%, and 31.8% were treated by variceal injection and band ligation, band ligation, variceal injection, and drugs respectively.

Table (1): Frequency and percentage distribution of the demographic characteristics of the subjects (n=110).

Variables	No.	%
Age / Yrs.:		
20 -	5	4.5
40 -	68	61.8
60 <80	37	33.6
Mean \pm SD = 54.9 \pm 9.88		
Gender:		
Male	72	65.5
Female	38	34.5
Occupation:		
Farmer	57	51.9
House wife	34	30.9
Public work	14	12.7
No work	5	4.5
Marital status:		
Single	1	0.9
Married	85	77.3
Divorced	4	3.6
Widow	20	18.2
Residence:		
Urban	45	40.9
Rural	65	59.1

Table (2): Frequency & percentage distribution of ways of detection, hospital admissions and management of EV among study subjects (n=110)

Variables	No.	%
Ways of detection		
Hematemesis & Melena	49	44.6
Hematemesis	20	18.2
Melena	12	10.9
Endoscopy	29	26.4
Blood amount in last bleeding		
About two cups and more	57	51.8
About one cup	18	16.4
Admission because of EV*		
One time	33	30
Two times	18	16.4
Three and more	16	14.6
Blood transfusion	54	80.6
Endoscopic management of EV		
Variceal injection and ligation	65	59.1
Variceal ligation	25	22.7
Variceal injection	20	18.2
** Receiving drugs	35	31.8

*Not all patients were admitted

**patients receive drugs besides other methods of treatment

In relation to high risk medications, table (3) showed that 51.8% of the study subjects know aspirin are risky, 33.6% know its effect; regarding analgesics 43.6%, 16.4% know the risk of analgesics and their effect respectively, while 15.5% know the other contraindicated drugs.

Table (3):Frequency & percentage distribution of study subjects' knowledge regarding high risk medications (n=110)

Variables	No.	%
High risk medications		
Aspirin	57	51.8
Aspirin effect	37	33.6
Analgesics	48	43.6
Analgesics effect	18	16.4
Other drugs	17	15.5

Regarding high risk nutrition, table (4) revealed that 59.1% of the study subjects know that there are some types of food affect EVB. These types of food represent 4.5% fresh vegetables and fruits, 26.4% citrus food, 79.1% fatty food, 50% rough food, 44.5% fruits with seeds, 26.4% pulp and dry peels, 60.9% spicy food, 50.9% flavoring as ginger. In relation to drinks, 32.7%, 20%, 41.8% of the study subjects recognized that hot drinks, alcohol and colas are risky respectively. 28.2% of the study subjects followed special dietary regimen, 3.6% had six small meals and 40.9% know suitable time for having dinner.

Table (4): Frequency & percentage distribution of study subjects' knowledge regarding high risk nutrition (n=110)

Variables	No.	%
High risk food*	65	59.1
Fresh vegetables and fruits	5	4.5
citrus foods	29	26.4
Fatty foods	87	79.1
Rough foods	55	50
Fruits with seeds	49	44.5
Pulp and dry peels	29	26.4
Spicy foods	67	60.9
Flavoring as ginger	56	50.9
High risk drinks		
Hot drinks	36	32.7
Alcohol	22	20
Colas	46	41.8
Special dietary regimen of EV	31	28.2
Had six small meals	4	3.6
Suitable time for having dinner	45	40.9

*Numbers are not mutually exclusive.

Table (5) revealed that all study subjects don't do exercise because 83.6% of them not tolerate the activity and 15.5% follow doctor order. Regarding other factors aggravating EVB, it can be noticed that 22.7%, 40.9%, 36.4% don't know the effect of lifting heavy objects, constipation, cough and sneezing on esophageal variceal bleeding respectively

Table (5): Frequency & percentage distribution of study subjects' knowledge regarding exercise and other aggravating factors (n=110)

Variables	No.	%
No Exercise	110	100
Why		
Doctor order	17	15.5
Inability	93	83.6
Other aggravating factors		
Lifting heavy objects	25	22.7
Constipation	45	40.9
Cough and sneezing	40	36.4

Figure (1) illustrated that (76.4%, 68.2% & 66.4%) of the study subjects had lack of knowledge regarding high risk related nutrition, high risk related medications and other factors (lifting heavy objects, constipation and cough) respectively.

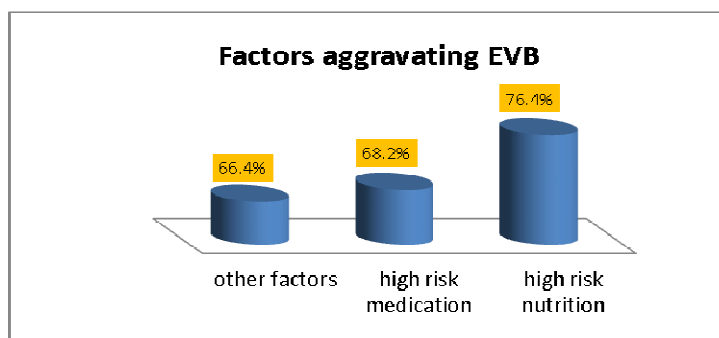


Figure 1: Percentage distribution of the study subjects' total knowledge level score regarding different factors aggravating EVB (n=110)

Figure (2) showed that 79.1 % of the study subjects had low level of knowledge score regarding different factors aggravating EVB while only (13.6%, and 7.3%) of them had average and high level of total knowledge score respectively.

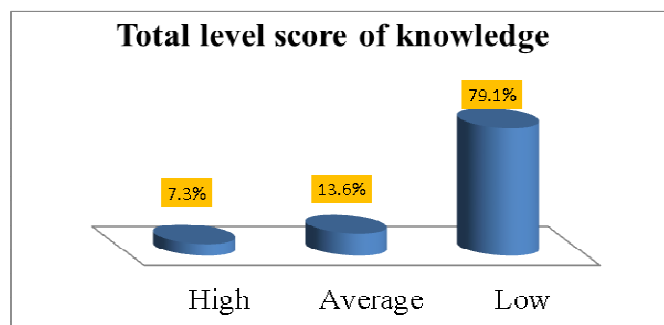


Figure (2): Percentage distribution of the study subjects' total knowledge score regarding factors aggravating EVB (n=110)

4. Discussion:

Bleeding from esophageal varices is a life threatening complication of portal hypertension which accounts for most of cirrhosis-related mortalities. Endoscopic therapy is an integral component of the management of acute variceal bleeding as well as prevention of recurrent bleeding (Gamal et al., 2013). Prevention and treatment of variceal hemorrhage includes: prediction of patients at risk, prophylaxis against a first bleed, treatment of an active bleed, and prevention of rebleeding. Diagnosing and treating portal hypertension is way to prevent esophageal variceal bleeding (Ignazio, Enzo, Leonilde & Piero, 2011). The nursing role in managing a patient with esophageal variceal bleeding requires a specific attention. Patients comfort can be maintained by assessing their needs. Giving adequate information can reduce distress, depression, anxiety, pain and physical symptoms, and promote recovery (Priest, 2010). So, this study was conducted to assess patients' knowledge of factors aggravating EVB among patients with esophageal varices.

The current study findings revealed that around two thirds of the study subjects were males and their ages ranged between 40 to less than 60 years old with a mean age of 54.9 ± 9.88 . These findings agreed with Moftaha, Kamala and Hannab, (2014) in their study about "CT esophagography: Non invasive screening and grading of esophageal varices in cirrhosis" who found that three quarter of the subjects were male and their mean age was 56.84 ± 7.52 years. Another study done by Ajayi et al. (2013) entitled "esophageal varices in patients with liver cirrhosis" reported that the male: female ratio was 1.9:1 with mean age 51.6 ± 10.2 and 55.4 ± 10.6 respectively. As well as Hassan (2012) who found that bleeding esophageal varices were common in males and a mean age of 54.5 ± 11.1 years. Furthermore, Abu El Makarem, et al. (2011) who studied platelet count/bipolar spleen diameter ratio for the prediction of esophageal varices, reported that two thirds of the study subjects were male, and their mean age was 48 years (range 36–60 years).

Regarding patients' occupation, it was found that half of the study subjects were farmers. It might be related to the Egyptian males were responsible for agricultural work which might expose them to bilharzial infection and liver disease. This finding was supported by Mohammed, (2011) in a study about "Endoscopic Sclerotherapy for Bleeding Esophageal Varices: Experience in Gezira State, Sudan" who reported that most the patients were farmers. According to marital status, the study findings revealed that, the majority of the subjects were married. This finding is in line with Abdulla (2010) who reported that the majority of patients in a study entitled "Assessment of knowledge and perception of the patient with hepatic disorders" were married. In relation to place of residence, the study findings revealed that more than half of the study subjects were from rural area. This finding is consistent with Mohammed, (2011) and El Jackie et al., (2008) who studied Octreotide versus sclerotherapy in the control of acute variceal bleeding in schistosomal portal hypertension and reported that variceal bleeding still carries a high mortality especially in rural setting where schistosomal portal hypertension is prevalent.

According to ways of detection, the findings of the present study revealed that nearly half of the study subjects detected their esophageal varices through attack of hematemesis & melena while one quarter of them detected EV by routine endoscopy and the last quarter detected EV by either hematemesis or melena and bleed more than two cups. These findings are in line with Owid, (2012) who studied "prevalence of portal hypertensive colopathy and its relevance to previous history of endoscopic esophageal variceal ligation or injection" and reported that more than half of patients presented with hematemesis & Melena. In relation to patients' admission, more than half of the study subjects were admitted to hospital between one, two and three times and the majority

of those patients received blood transfusion. This finding is matched with Dirkson, (2011) who stated that the management of variceal bleeding requires administration of blood products for hemodynamic resuscitation.

Concerning endoscopic management of EV, the study findings showed that sclerotherapy and band ligation was nearly equally performed for management of patients with esophageal varices. This is congruent with Gustavo, et al. (2011) who compared sclerotherapy and band ligation for hemostasis of acute variceal bleeding and concluded that endoscopic sclerotherapy and band ligation were equally efficient for the control of acute variceal bleeding and added endoscopic ligation achieved variceal obliteration faster and in fewer treatment sessions and had a significantly lower rate of rebleeding.

In relation to high risk medications, the results of the current study showed that about two thirds of the study subjects had low total knowledge score regarding this issue. From the investigator point of view, this would be attributed to the fact that consumption of medications like (NSAIDs) as aspirin, diclofenac and other over the counter drugs (OTC) that predispose to EVB are high in our population. Thus, pharmacists and physicians need to advise patients about potential adverse drug reactions (ADRs). In this respect, Rodriguez, (2012) who studied "risk of hospitalization for upper gastrointestinal tract bleeding associated with ketorolac, other NSAIDs, calcium antagonist and other hypertensive drugs" reported that Ketorolac was five times more gasterotoxic than other NSAIDs. Moreover, Luis, et al., (2011) in his study about "Risk of Upper Gastrointestinal Bleeding with Low-Dose Acetylsalicylic Acid Alone and in Combination with Clopidogrel and Other Medications" concluded that use of low-dose ASA is associated with an almost double increase in the risk of UGIB compared with non use.

The present study revealed also that three quarters of the study subjects had low total knowledge score about high risk related nutrition. This finding indicates that patients with EV are in need of health education to enhance their knowledge about their physiological needs. Hogan, (2012) pointed out that factors which contribute to bleeding esophageal varices are irritating foods or fluids; ingestion of foods high in roughage; and reflux of stomach contents. In this respect, Jiang, (2013) in a study entitled "Enhanced nutritional therapy may promote wound healing after endoscopic therapy in patients with liver cirrhosis and esophageal varices" found that the enhanced nutrition group required less sessions of endoscopic treatment to achieve eradication of esophageal varices than the control group. In addition, Hitoshi et al. (2001) who studied the relationship among gastric motility and portal hemodynamics in patients with liver cirrhosis, found that the increased rate of portal blood flow after a meal correlated positively with the increased rate of electrogastrographic (EGG) peak power.

Moreover, Okamoto Et al., (2008) who studied the relationship between gastroesophageal reflux and variceal rupture, concluded that Gastroesophageal acid reflex may be a risk factor of bleeding esophageal varices. Kaufmann and Strohmeyer (2006) who evaluated the possible influence of the trauma of swallowing solids on the outcome and complication rate of endoscopic injection sclerotherapy, indicated that episodes of acute massive bleeding from varices were less occurred in group A (mashed food) than group B (normal solid food).

In relation to exercise the present study showed that all the study subjects were not unable to practicing exercise due to activity intolerance. This finding is in accordance with Kallman et al. (2010) who mentioned that fatigue was the most important symptoms with negative impact on HRQOL in chronic hepatitis. Moreover, Ahmed (2008) in his study entitled "Factors affecting quality of life of patients with liver cirrhosis" who found that only one fifth of patients were practicing exercise. Concerning other factors aggravating EVB, it was found that, the study subjects' knowledge about other factors aggravating EVB such as constipation, cough and lifting heavy objects represent (40.9%, 36.4% & 22.7%) respectively. In this context, Ali (2007) who reported that the most common factors in the control and study group were constipation (27.5% & 20% respectively) followed by cough (5% and 12.5% respectively). In addition, Abo Omer, (2011) in his study entitled "Potential Precipitating factors for esophageal variceal bleeding" found that there was a relation between constipation, vomiting and cough and attack of bleeding. Also, Burcharth and Bertheussen (2003) in a study about "The influence of posture, Valsalva manoeuvre and coughing on portal hypertension in cirrhosis" reported that During Valsalva manoeuvre portal pressure was doubled, and it became fourfold during coughing.

Conclusion:

Based on the findings of the present study, it can be concluded that most of patients with esophageal variceal bleeding had lack of knowledge regarding different factors aggravating the risk of bleeding. The most common factors were that related to nutrition and medications. Hence, all efforts should be directed toward providing those patients with a comprehensive instruction regarding these factors aggravating EVB. Early detection, prevention and intervention have a great effect on early variceal eradication and prevent rebleeding.

The findings can assist nurses in understanding the interventions necessary to meet care needs of patients. Patients' knowledge must be considered commensurate with the presenting physical needs.

Recommendation: Based on the study findings, the following are the main recommendations:

- Patient's education is very important element in the treatment process so; it must be emphasized
- Patients should be provided with simple, illustrated guide booklet to provide them with the needed information regarding esophageal varices, its complication and potential precipitating factors for variceal bleeding.
- Multidisciplinary team should be collaborating in management of patients with esophageal varices and helping them to overcome their problem/needs during their treatment process.
- Further studies have to be carried out in order to assess nurses' knowledge and practices regarding care of patients with esophageal varices.

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