EFFECT OF DISCHARGE PLANNING FOR PATIENTS WITH ESOPHAGEAL VARICES ON COMPLIANCE TO THERAPEUTIC REGIMEN

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Abstract:
Acute bleeding from esophageal varices is often a dramatic event. Dependent on the amount of lost blood, patients might be hemodynamic instable and present in hemorrhagic shock. Thus, the management of patients with acute variceal bleeding includes not only treatment and control of active bleeding but also the prevention of rebleeding, infections and renal failure. **The aim of this study** was to assess the effect of discharge planning for patients with esophageal varices on compliance to therapeutic regimen. **Subjects and Methods:** A purposive sample of 100 esophageal varices patients in GIT endoscopy unit and internal medicine units at Benha University Hospital over a period of 12 months. Data were collected using **I)** Interview questionnaire sheet to assess patients' knowledge, which include two parts 1) Socio demographic characteristics related to patients and 2)Structured Knowledge Questionnaire, **II)** Compliance assessment sheet to assess compliance of patients with esophageal varices to therapeutic regimen. **Results:** revealed that more than half (53%) of patients had poor knowledge before implementation of the program, which improved post and follow-up program implementation (79%). Regarding to patients' compliance toward therapeutic regimen, findings indicated that, less than half (45%) of the patients had low level of compliance prior implementation of the program, which improved to high level of compliance (77%) post and follow-up program implementation. **Conclusion:** The results had shown many areas of deficit in patients' compliance toward therapeutic regimen prior application of the program which reflects a need for further continuous education which will provide patients with some directions that will help to be compliant with therapeutic regimen and manage complications. **Recommendations:** The study recommended for further continuous educational programs to be conducted for the patients to improve their compliance.
Key words: Discharge planning, Compliance, Therapeutic Regimen, Faculty of Nursing, Benha University

Introduction:

Gastrointestinal (GI) hemorrhage from ruptured esophageal varices (EV) is a significant cause of morbidity and mortality in patients with hepatitis C virus (HCV) - related cirrhosis. The risk of developing EV and bleeding is influenced by hepatitis severity. **(D'Ambrosio, Aghemo, Rumi, Primignani, Dell'Era, Lampertico, Donato, De Nicola & Prati., 2011).**

EV are seen in approximately 50% of patients with cirrhosis. Without treatment, about one-third of patients with varices will

experience their first bleeding episode within 2 years after the diagnosis is made. Re-bleeding occurs in about 60% of these patients during the first 2 years after the initial bleeding episode. In a large proportion of cirrhotic patients, acute upper gastrointestinal bleeding is non-variceal, and may be fatal. The prognosis of patients with variceal bleeding is severe with a 6-week mortality rate of 20–30%. Interventions for the prevention of re-bleeding from esophageal varices are therefore important. **(Triantos & Burroughs, 2007, Hobolth, Krag, Bendtsen, 2010, &Thiele, Krag, Rohde, Gluud, 2012).**

Compliance describes the degree to which a patient correctly follows medical advice. Most commonly, it refers to medication or drug compliance, but it can also apply to other situations such as medical device use, self-care, self-directed exercises, or therapy sessions. Both the patient and the health-care provider affect compliance, and a positive physician-patient relationship is the most important factor in improving compliance, although the high cost of prescription medication also plays a major role. **(Santschi, Chiolero, & Burnier, 2009).**

Discharge planning is a crucial aspect of patient care because it ensures that the same quality and frequency of medical care is provided in order to prevent re-hospitalization. The discharge planning nurses are an integral part of the patient-care unit; their duties are essential and appreciated. Not only do they allow the bedside nurse to function on immediate patient-care needs, but they coordinate a plan of care that enables the patient to obtain optimum health after discharge. **(Alper, O'Malley, Greenwald, Aronson, Park, &Ward, (2012).**

Nursing priorities during GIT bleeding are directed toward protecting the airways to prevent aspiration, providing hemodynamic support, treating coagulopathy, and reducing portal pressure administering volume replacement, controlling the bleeding, providing comfort and emotional support, maintaining surveillance for complications and educating the patient and family **(Smith, 2010 & Hosney, 2014).**

Significance of the study:

Acute variceal hemorrhage is a serious cause of mortality in the emergency department and can be difficult to treat. In general, upper (GI) hemorrhage accounts for 102 hospitalizations per 100,000 people every year, and esophageal varices represent approximately 14% of these cases. Furthermore, esophageal varices

are the most common cause of persistent and sever upper GI hemorrhage, accounting for approximately 33% of these events. Among patients with cirrhosis, 70% of upper GI bleeding episodes are caused by esophageal varices. Gasrtoesophageal varices exist in nearly 50% of patients with cirrhosis at the time of initial diagnosis. **(American College of Emergency Physicians, 2014)**

In Egypt, it was estimated that esophageal varices is the commonest cause of upper gastrointestinal hemorrhage, it develops in about 50-63% of patients with liver cirrhosis, **(Hosney, 2014).** The number of patients admitted to internal medicine units at Benha university hospital was 2393 patients by the end of the year 2013, while, the number of patients admitted to GIT endoscopy unit was 1294 patients at the same hospital in the same year.

Aim of the study:

This study was done to assess the effect of discharge planning for patients with esophageal varices on compliance to therapeutic regimen

It was done through:

1. Assessing patients' needs and compliance of patients to therapeutic regimen.

2. Designing and implementing discharge planning for patients with esophageal varices.

3. Evaluating the effect of discharge planning on compliance of patients to therapeutic regimen.

Hypothesis:

This study hypothesized that:

1- The implementation of discharge planning will have positive effect on compliance to therapeutic regimen for patients with esophageal varices.

Subjects and methods:

Research design:

A quasi experimental design was utilized in this study.

Variables:

- The dependent variable is compliance of patients with esophageal varices regarding therapeutic regimen.

- The independent variable is discharge planning for patients with esophageal varices.

Research Setting:

This study was conducted in GIT endoscopy unit and internal medicine units at Benha University Hospital.

Subjects:

A purposive sample of 100 adult patients with esophageal varices

was selected within the following inclusion criteria. The sample size was determined considering the total number of patients who underwent esophageal varices endoscopy at Benha university hospital at year 2011 were 334 patients, power analysis indicated that 100 patients would be enough to assess the effect of discharge planning on patients' compliance to therapeutic regimen.

Inclusion criteria:

- Adult patients, from both gender

- Conscious, diagnosed with esophageal varices with previous attacks of bleeding

- Patients free from physical & mental handicapped, and able to communicate with others

- **The exclusion criteria** were patients with hepatocellular carcinoma or advanced liver cell failure.

Tools for Data Collection:

Two tools were piloted and used by the researcher to collect data including:

I) Interview questionnaire sheet: to assess patients' knowledge, which includes two parts:

1) Socio demographic characteristics of patients

2) Structured Knowledge Questionnaire which is divided into two sections 1- It was divided into two major sections:

Section (a): entails elements about esophageal varices, upper GIT endoscopy, therapeutic regimen, and follow-up

Section (b): Composed of questions to collect data about factors of non-compliance for patients with esophageal varices,

II) Compliance assessment sheet: to assess compliance of patients with esophageal varices to therapeutic regimen.

Pilot study:

A pilot study was carried out on (10) patients suffering from esophageal varices. Based on the result of pilot study and the revision of the tools by seven expertise in the medical surgical nursing specialty & internal medicine, in order to test the clarity and applicability of the study tools. Required modifications were done in the form of adding or omission of some questions. The time needed to fill in the questionnaire was about (45-50 minutes). Patients involved in the pilot study were excluded from the main study subjects.

Procedures:

Discharge planning application comprised the following phases:

♦ Before conducting the study, an exploratory visit was done to the GIT endoscopy unit and internal medicine units at Benha university hospital in order to estimate the rate of admission and suitable time for collecting data. Besides, personal communication was done with nurses and physicians to explain the purpose of the study and gain their best possible cooperation.

♦ Data for the current study were collected through the period from beginning of September 2013 till beginning of January 2014 (for pre-test and application of discharge plan) then it was completed for post-test (immediately after finishing application of discharge plan) from January 2014 till march 2014 then it was completed for follow-up after three months during morning and afternoon shifts.

♦ An oral consent was obtained from patients after explaining the purpose of the study (explaining the purpose of each sheet, and meaning of each one).

♦ The process of data collection was achieved through three phases:

* The first phase (pre-test): before implementation of discharge planning to have baseline assessment about patients' level of knowledge and compliance.

* The second phase (post-test): immediately after implementation of discharge planning to assess the effect of discharge planning program.

* The third phase (follow-up): after implementing discharge plan by three months to assess patients' compliance.

♦ Discharge planning program implementation: the discharge planning implemented by the researcher by using designed simple Arabic booklet, (Appendix II). program implementation has taken (16) weeks, total number of sessions were (8) sessions divided as follow:

1- **Session (1):** Introduction to Educational Program {Discharge Planning} & information about Esophageal Varices

2- **Session (2) :** Methods of diagnosis & treatment of Esophageal Varices

3- **Session (3):** Knowledge about Upper GIT Endoscopy

4- **Session (4) :** Diet for Esophageal Varices patients

5- **Session (5):** medication & exercise for Esophageal Varices patients

6- **Session (6):** Follow-up for Esophageal Varices patients after discharge from hospital {1st aid during hepatic coma, EV bleeding, anal bleeding, and warning signs to go to hospital}.

7- **Session (7):** Follow-up for Esophageal Varices patients after discharge from hospital (continued) {ways of personal hygiene, nail care, teeth care, skin care, and importance of stopping smoking}

8- **Session (8):** Follow-up for Esophageal Varices patients after discharge from hospital (continued) { food and home sanitation, psychological and social support}

♦ The teaching sessions started with patient and his family before undergoing endoscopy if his case is stable or after endoscopy after stabilizing case.

♦ The researcher was attended in ward of GIT endoscopy unit and internal medicine units from 9 A.M till the end of endoscopy sessions according to unit schedule.

♦ Teaching methods using lectures and discussions were conducted. Teaching hours were not less than 2 hours/day. Booklet was distributed to all patients in the first day from starting program implementation. Evaluating the effect of discharge planning implementation was done by measuring the change in patients' compliance pre and post-test and after three months later using the previously mentioned tools.

♦ The estimated time spent with each patient for collecting data lasted between 20-30 minutes, and about 3 to 5 patients were interviewed daily, through 3 days/week during morning and afternoon shifts.

Administrative design:

Permissions for data collection were generated from hospital directors and head managers of the GIT endoscopy unit and internal medicine units at Benha university hospital and by the submission of a formal letters from the Faculty of Nursing, Benha University. Once the researcher was granted approval, the interview questionnaire sheet & compliance assessment sheet were adapted.

Ethical consideration:

Ethical approval was obtained from the Scientific Ethical Committee of Benha University.

The purpose of the study was explained to the patients and oral consent was obtained from them to participate in this study. They were given an opportunity to withdraw from the study without given a reason and they were assured that anonymity and confidentiality of information was protected. Ethics, values, culture, and beliefs were respected.

Statistical analysis:

The collected data were tabulated and statistically analyzed using an IBM computer and the statistical package for social science (SPSS) advanced statistics, version 20 (SPSS Inc., Chicago, IL). Numerical data were expressed as mean and standard deviation. Qualitative data were expressed as frequency and percentage. Chi-square test was used to examine the relation between qualitative variables. Spearman-rho method was used to test correlation between numerical variables. Linear regression was used for multivariate analyses on circumferential differences in patients with esophageal varices regarding compliance to therapeutic regimen as dependent factor. Also cronbach's alpha test was used to test the reliability of the tools**.**

Results:

Table (1) : Frequency and percentage distribution of the studied sample according to their socio-demographic characteristics (n=100).

Socio Demographic Data / Frequency	No	%
* Age (in years)		
41-50 years	80	80.0
51-60 years	20	20.0
- Mean ± SD	47.29±4.87 y	
*Sex:		
Male	71	71.0
Female	29	29.0
* Educational level:		
Illiterate	73	73.0
Read and write	27	27.0
* Occupation:		
Manual work	69	69.0
Housewife	31	31.0
* Residence:		
Rural	82	82.0
Urban	18	18.0
* Marital status:		
Married	100	100.0
* Number of family members:		
1-5	28	28.0
6-11	72	72.0
* Income:		
Insufficient	100	100.0
* Supply of medication:		
Health insurance	34	34.0
Own cost	66	66.0
*Smoking:		
Yes	15	15.0
No	29	29.0
Previous smoker	56	56.0
*Smoking type:		
Cigarettes	15	100.0
*Number of cigarettes / day		
1-5	15	100.0

Table (1) describes socio-demographic characteristics as: the majority (80%) of patients' age was within age group of (40-50 years with a mean age of 47.29±4.87 years). Less than three quarters of them (71, 73, 72%) were males, illiterate, and their family number ranged from (6-11) members

respectively. while, more than half (69, 66, 56%) working manual work, had supply of medication on their own cost, and were previous smokers respectively. All of them (100%) were married, and their income was insufficient. Whereas, the majority of them (82%) lived in rural areas.

Table(2) : Frequency and percentage distribution of the studied sample according to their disease history (n=100).

Disease history \ Frequency	No	%
* Disease complain:		
Liver cirrhosis	100	100.0
Hypertension	60	60.0
Diabetes	60	60.0
Bilhariziasis	40	40.0
Kidney disease	40	40.0
* Take medications regularly:		
Yes	100	100.0
* Type of medication:		
Combinations	100	100.0
* Duration of taking medication:		
1-5 years	25	25.0
5-10 years	25	25.0
>10 years	50	50.0
* First bleeding from esophageal varices:		
>1 year	100	100.0
*Number of bleeding from EV:		
Once	65	65.0
Twice	35	35.0
* How much EV bleeding in each time:		
Cup of water	60	60.0
More than one cup	40	40.0
*Blood transfusion:		
Yes	100	100.0
*Number of times of blood transfusion:		
Don't know	100	100.0
*Number of bags each time:		
1 bag	49	49.0
Don't know	51	51.0
*Make endoscopy before:		
Yes	100	100.0
*Number of endoscopy:		
Once	80	80.0
Twice	20	20.0

Table (2) illustrated that, less than half of the studied sample (40%) had bilhariziasis and kidney disease; more than half of them (60%) had hypertension

and diabetes, while, all of them (100%) had liver cirrhosis, take combinations of medications for these diseases regularly, bled from less than1 year, received blood transfusion, and made endoscopy before. As regards duration of taking medications, half of them (50%) were taking medications for more than 10 years. According to amount of bleeding, more than half of them (60%) bled about one cup of water. More than half of them (51%) received blood transfusion but they didn't know how many bags. Also, the majority of them (80%) made endoscopy before didn't know how many times
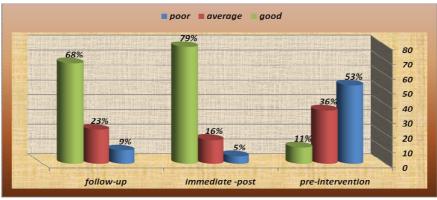

Figure (1): Distribution of total knowledge pre, post, and follow-up program implementation (n=100).

Figure (1): Shows that more than half of the studied group (53%) had poor knowledge preprogram implementation, while, more than three quarters of them (79%) had good knowledge post –program implementation. Whereas, more than half of them (68%) had good knowledge follow-up the program
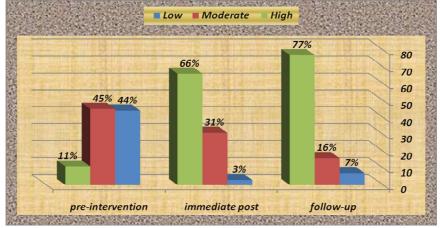

Figure (2): Distribution of total compliance pre, post, and follow-up program

implementation (n=100).

From figure (2): it was observed that, less than half of the studied group (45%) had moderate level of compliance pre- program implementation, while more than half of them (66%) had high level of compliance immediately post implementation of the program, whereas, more than three quarters of them (77%) had high level of compliance follow- up program implementation

Table (3): correlation between patients' total knowledge and compliance pre, post, and follow-up program implementation (n=100).

Total knowledge score	Total compliance score					
	Pre program		Post program		Follow-up	
	r	P-value	r	P-value	r	P-value
Knowledge pre	.910(**)	.000	.555(**)	.000	.134	.184
Knowledge post	.262(**)	.008	.764(**)	.000	.663(**)	.000
Knowledge follow	.196	.050	.735(**)	.000	.825(**)	.000

Table (3) : shows that there were high statistically significant positive correlations between patients' total knowledge and their total compliance

Discussion:

As regards socio-demographic characteristics of the patients, the current study pointed out that the mean age of the sample was 47.29±4.87 years and the majority of them were males. This would be attributed to the fact that Egyptian males are responsible for agricultural work which may expose them to bilharizial infection and liver disease. This finding was nearly similar to that of ***Mohsen et al., (2011),*** who carried out a study to assess the effect of nursing management protocol on selected side effects of Interferon and Ribavirin among hepatitis c clients.

She used a purposeful sample of 60 hepatitis c clients of both sexes in the liver Outpatient clinic at ***Shibin El-Kom teaching hospital***; who found that the mean age of the studied group was 41.06± 9.31 years. However; these results were lower than those of ***Davis et al., (2011),*** who reported in his study that clients were predominantly males and the average age was 49 years. Approximately, half of the sample size was between the ages of 45 and 54 years. As well, ***Heneedy, (2009),*** who conducted a study on the effect of nursing implementations on physical response and compliance among clients with liver cirrhosis at the

national liver institute at Menoufyia university hospital, and mentioned that the mean age of the study sample was 49.8± 8.4 for the study group.

As regards *sex,* the present study results showed that slightly less than three quarters of clients were males. This finding was in the line with *Alavian et al.(2006); Mitra et al.(2006) and Mohsen et al..(2011),* who reported that the majority of their studied sample were males. In addition, this finding is congruent with *Mohamed et al.(2006) and Murphy et al.. (2007),* who reported that male sex was considered a significant risk factor in acquiring HCV infection in a cross sectional study conducted among Egyptians attending the ministry of health laboratories for certification of freedom from hepatitis B and C to work abroad. *Nafeh et al.(2007) and Darwish et al .(2008)* also confirmed that the prevalence of HCV was higher among males than females. It was greater among those above 30years of age than younger age, and it was more prevalent among low educated client. Also, among residents of Upper Egypt than residents in Lower Egypt, and among farmers and currently married.

Concerning the *educational levels* of the studied sample, the results showed that nearly three quarters were illiterate. This would be attributed to the fact that the majority of the sample were from rural areas and working as farmers. This finding was supported by *Sallam, (2007),* who stated in her study that about half of patients were illiterate, about one third were farmers and the majority of patients were from rural areas. Also, she explained these results that farmers are more exposed to schistosomal infection and its subsequent liver dysfunction and bleeding esophageal varices.

Regarding their *marital status*, the majority of the study sample were married. Almost number of family members ranges between 6-11 persons. While, all of them reported hat income is insufficient especially the majority pays costs of medication on their own cost. This was in line with *Mohamed, (2009),* who reported in a study about relationship between therapeutic nursing modalities among cirrhotic patients and quality of life that the majority of patients under study were married. Also, the findings about family income are relevant with *Sallam, (2007),* who reported that the majority of the studied sample were farmers and had income less than 500 Egyptian pounds per month. This reflects that they lack the costs of medical treatment.

As regards to **smoking**, the present study revealed that more than half of the samples were previous smokers. This could be attributed with the physicians' orders to stop smoking and the frequent health education campaigns in the mass media about the effects and problems on body health as stated by patients themselves. These findings are inconsistent with **Gbre, (2013),** whose study revealed that the majority of patients were smokers.

Concerning **medical history**, the present study results showed that, less than half of patients had kidney disease, all of them had liver cirrhosis and less than half had previous treatment of shistisomiasis. In a recent study by **Butt et al.(2011),** explained the association of hepatitis c virus(HCV) with chronic kidney disease (CKD) is controversial, due, in part, to conflicting research findings. Although, HCV transmission in dialysis units has been well documented, a high number of clients new to dialysis already have HCV, suggesting that the virus often is acquired before initiating dialysis therapy. Also, results from the third national health and nutrition examination ultrasound (US) survey conducted by **Tsui et al.(2006),** identified that among a representative sample of the US population, hepatitis c is independently associated with albuminuria among adults over the age of 40 and HCV seems to be most strongly associated with membranoproliferative glomerulonephritis. As well, **Russo et al.(2009) and Sarhan, (2011),** stated that the prevalence of HCV infection is higher in clients on hemodialysis than in general population.

As regards **first bleeding from esophageal varices**, the entire sample reported that the 1st bleeding was from less than one year, the majority stated that it occurred only one time and it was about a cup of water. These findings were supported by **Kovalak, et al., (2007),** who reported that nearly 50% of patients with newly diagnosed liver cirrhosis have accompanying varices every year, new varices are develop or the preexisting varices worsen in 7% of patients, and first bleeding occurs in 12% of patients each year.

In relation to **blood transfusion**, the entire sample mentioned that they received blood transfusion or its products. These findings were supported by those of **Kim, (2014),** who reported that treatment goals for acute variceal bleeding are to correct hypovolemia; achieve rapid hemostasis; and prevent early rebleeding. Also, he stated that the first step of treatment in patients

with bleeding is the evaluation of the severity of the bleeding, and the achievement of hemodynamic stability through the administration of adequate fluids and transfusion.

Furthermore, the entire studied group made endoscopy before, this may be due to the severity of condition as it is considered a medical emergency to control bleeding and also for early detection of varices formation. This is in line with *Hsu , et al., (2009), and Kim , (2014)* as they reported that endoscopic treatment should be performed as soon as the patient with acute variceal bleeding gains hemodynamic stability. Performing endoscopic therapy after more than 15 hours after hospital arrival significantly increases the mortality rate. It is recommended that endoscopic treatment be performed as soon as possible, that is, within 12 hours, in patients with variceal bleeding.

Regarding correlation between patients' total knowledge and total compliance the present study revealed that there was statistical significant positive correlation between patients' total knowledge and total compliance, this would be attributed that application of the educational program has positive effect on patients' compliance toward therapeutic regimen.

This finding is in agreement with *Sallam, (2007),* who stated that increased knowledge improves compliance and outcomes, and added that health education can result in positive outcomes in improving compliance with therapeutic regimen when cultural believes and experience of patients are understood.

Also, this finding is in line with *Mohamed, (2008),* who confirmed that adherence to therapeutic regimen includes adherence not only with medication, but also with diet, exercise, and follow-up. Also, added that patients who have nurses responsible for giving medication to them in hospital their adherence may be better than in outpatient clinics where patients are responsible for taking medications by themselves.

As a final point, the present study showed that there were significant improvements in patients' knowledge and compliance after discharge planning implementation. This study pointed out that patients' compliance to therapeutic regimen depends on healthy diet, regularly taking medications, performing exercise as tolerated, and complying with follow-up appointments. If there is a lack in any step, the patient will suffer from further complications.

Conclusion:

The current study concluded that, Patients had good knowledge, after implementation of the discharge plan with high level of compliance to therapeutic regimen.

This study proved that implementation of discharge planning had positive effect on improving compliance of patients with EV regarding therapeutic regimen. This means the study hypothesis had been proved.

There were highly statistically significant relation between patients' sociodemographic characteristics and their total knowledge post-program implementation. Also, there were highly statistically significant relation between patients' sociodemographic characteristics and their total compliance to therapeutic regimen. And, there were highly statistically significant positive correlation between patients' total knowledge and their total compliance.

Recommendations:

According to results of the current study, the following suggestions are recommended:

1. Periodic supervision should be provided for patients and their family members to prevent occurrence of complications and improve patients compliance regarding therapeutic regimen.

2. Further studies about patients' compliance in GIT endoscopy units should be done on larger numbers of both nurses & patients.

3. Infection control programs should be provided to patients and their family members to prevent further complications.

4. Illustrating the need for improved communication and education for patients to improve their compliance.

5. Patient health related behaviors are better to be assessed through schedule of home visits to the patients by the public health nurse.

Conducting a study about knowledge assessment about how liver cirrhotic patients view and achieve their own compliance.

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