

Assessment of Knowledge and Self-Care Regarding Patients with Hepatic Encephalopathy

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Abstract

Background: Hepatic Encephalopathy (HE) is neuropsychiatric deterioration syndrome due to hepatic insufficiency. HE symptoms appear gradually ranging from altered mental status to deep coma and manifest as disorders of orientation, memory, perception, reasoning, focusing, rigor, and generalized convulsions. Four levels of HE exist with different symptoms. **Aim:** This study aimed to assess knowledge and self-care regarding patients with hepatic encephalopathy. **Design:** An exploratory descriptive research design was used in this study. **Setting:** This study was conducted at the Endemic Disease Unit (Hepatology Unit) at El-Fayoum University Hospitals. **Sample:** A purposive sample of 60 adult patients aged 18-65 years from both genders who was diagnosed as having hepatic encephalopathy. **Tools:** one tool was used to collect study data (a structured interview questionnaire), and include three parts: patient demographic and medical data, patient's knowledge assessment questionnaire and patient's self-care reported checklist. **Results:** this study revealed that, the mean age of studied patients was 49.57 ± 11.48 , 76.7% of the studied patients had unsatisfactory level of knowledge and 55.5% of them had a poor level of self-care regarding hepatic encephalopathy. **Conclusion:** the study concluded that, more than three quarters of the studied patients had unsatisfactory knowledge regarding hepatic encephalopathy. Also, more than half had a poor self-care regarding hepatic encephalopathy. **Recommendations:** Distribution of a written teaching hand book for each hepatic patient in simplified term and containing simple pictures about preventive measures of hepatic encephalopathy to provide them with the needed information.

Keywords: *Hepatic Encephalopathy, Patient Knowledge, Self-Care.*

Introduction:

Liver diseases affect millions of people worldwide each day. However, in the developing countries where cost of health care has always been an issue, long lasting diseases such as liver cirrhosis and its complications are a major health problem and pose a big challenge to the health economy. Because of poverty, poor hygienic conditions, inadequate education and lack of counseling, the number of cirrhotic patients is increasing and most of them are admitted to medical wards with different complications (Kabir et al., 2018).

Hepatic Encephalopathy (HE) is a decline in brain function that occurs as a result of severe liver disease. In this condition, liver can't adequately remove toxins from blood. This causes a buildup toxin in blood stream, which can lead to brain damage. Hepatic encephalopathy is a syndrome usually observed in patients with cirrhosis. It is characterized by personal changes, intellectual impairment and depression in level of consciousness, it also described in patients with cirrhosis (Saad et al., 2021).

Early identification of precipitating factors is extremely important in diagnosis and treatment of this fatal condition. The clinical course of hepatic encephalopathy can be interrupted in majority of patients by controlling these precipitating factors. Hence early and accurate diagnosis and proper identification of precipitating factors will help in initiating the appropriate treatment and thereby bringing down the morbidity and mortality (Nayak et al., 2016).

Satisfactory level of patient's knowledge regarding his disease has a significant effect on the patient's control of his disease and its side effects; and can improve quality of life, life satisfaction, and mechanisms of coping with treatment. Since the patient may have cognitive deficits, the family or primary caregiver should be included in all teaching. Both patient and family benefit from an

education on the general overview of HE and practical pointers about integrating treatments such as lactulose administration and prevention of precipitating problems such as dehydration and infection into daily activities. (Atya et al., 2019).

Good level of patients' self-care practices should ultimately lead to a decreased rate of hospitalization and other involvement of health care services. In addition, self-management encourages patients to take an active role in their own healthcare. Individuals who "self-manage" tend to also make informed decisions regarding possible diagnostic and treatment options as well as follow prescribed treatment plans. Consequently, self-management encourages adherence to treatment plans, improves interaction between patients and caregivers, reduces the use of medical specialists and medical costs, and advances clinical outcomes across the lifespan (Thuy, 2019).

Significance of the study:

Hepatic encephalopathy occurs as complications of advanced liver disease 30-45% of patients with cirrhosis develop to HE. In the case of chronic liver disease, as it tends to have an insidious onset, most patients do not seek treatment until late in the course of the disease develop complications. According to the World Health Organization WHO (2017) Liver Disease Deaths in Egypt rank number one in the world. (Saad et al., 2021).

Most studies showed patients with liver disease lacked important knowledge and self-care regarding hepatic encephalopathy. This lack of understanding might pose a barrier to nurses and physicians attempting to give optimal care for their patients. Since liver disease in Egypt has been increasing, there is a significant need to investigate patients' level of knowledge regarding the disease

Aim of the study:

The study aimed to assess knowledge and self-care regarding patients with hepatic encephalopathy

Research question:

1. What is the patient's level of knowledge regarding hepatic encephalopathy?
2. What is the patient's level of self-care regarding hepatic encephalopathy?

Sample and Methods:**Design:**

A descriptive design was utilized for conducting this study.

Setting:

This study was carried out at the endemic disease unit (hepatology unit) at El-Fayoum University Hospitals. It contains 4 beds in the intermediate care unit and 17 ward beds. The total number of nurses is: 2 head nurse, 20 bedside nurses, 15 internship nurses from the faculty of nursing Fayoum University.

Sampling:

A purposive sample of 60 adult patients aged 20-65 years from both genders was included in the study and admitted to the previously mentioned setting during the study period, met the inclusion criteria and accept to participate in the study.

Inclusion criteria

Adult patients aged 20-65 years from both genders who was diagnosed as having hepatic encephalopathy, admitted to the previously mentioned setting during the study period. The data collected from the patient prior to discharge whenever the patient fully conscious, oriented and hemodynamic stable.

Exclusion criteria

- The study was excluded those whom was admitted with known renal failure, head trauma, brain abscess, neurologic problem (meningitis, encephalitis) and multiple system failure.
- The study also was excluded those not fully conscious, not oriented, hemodynamic unstable or unable to communicate.

Tools of data collection:

One tool was utilized to collect data for this study: -

Tool I: A structured interview questionnaire:**Part I: Patient's Demographic and Medical Data:**

This part was developed by the researcher based on literature review (Atya et al., 2019) and included three parts.

A. Patient's Demographic Data:

It was concerned with demographic data of the patients such as age, gender, marital status, educational level and occupation.

B. Patient's Medical data (present & past)

Which included the following items; past medical history, hepatic viral infection, ascites, any previous hospitalization due to hepatic encephalopathy and precipitating factors of hepatic encephalopathy.

Part II: Patient's knowledge assessment questionnaire:

This part adopted from (Atya et al., 2019). to assess patient's knowledge regarding hepatic encephalopathy (definition, risk factors, signs and symptoms, diagnostic studies, preventive measures, dietary restrictions, precautions for minimizing esophageal varices bleeding, prevention of constipation, signs and symptoms of

gastrointestinal bleeding). it consists of 27 multiple choice questions (MCQ).

Scoring system: patients knowledge assessment questionnaire consisting of 27 questions, the correct answers were predetermined according to literature review, a correct answer was scored one point and incorrect answer was scored zero point, and satisfaction levels was detected based on statistical analysis as following:

- Total satisfactory knowledge level $\geq 60\%$ (≥ 17 grades)
- Total unsatisfactory knowledge level $< 60\%$ (< 17 grades)

Part III: Patient's Self-Care Reported Checklist:

This part adopted from (Volk, Fisher & Fontana, 2013). to assess patient's self-care practices regarding hepatic encephalopathy and was included self-care practices regarding medication, diet, activity and exercises, symptoms management, caregiver contact and emergency situations.

Scoring system: the total items of checklist were (33), each step has 5 levels of answers (Never, rarely, sometimes, often and always). These were respectively scored (0, 1, 2, 3 and 4). Satisfaction levels was detected based on statistical analysis as following:

- Good self-care level $\geq 70\%$ (≥ 93 grades)
- Poor self-care level $< 70\%$ (< 93 grades)

Pilot study:

A Pilot study was carried out with 10% (not less than 10 patients) of the sample under study to test the applicability, clarity and efficiency of the tools, then the tools modified. The involved patients of the pilot study were excluded later from the main study sample.

Field work:

The actual field work was carried out for data collection over 6 months started from the beginning of September 2022 till end of February 2023, data collected two days per week (Sunday and Wednesday) during the morning from 9 am to 2 pm and started whenever the patient is fully conscious, oriented and hemodynamic stable. the purpose of the study was explained by the researcher to each patient before sharing interviewing and data collection in addition to clear and brief idea about aim of the study and its expectation. The average time needed for completion of each questionnaire was approximately 15 minutes.

Ethical consideration:

An official permission to conduct the proposed study was obtained from the Scientific Research Ethics Committee faculty of nursing Helwan university. Participation in the study was voluntary and subjects were given complete full information about the study and their role before signing the informed consent and that they had the right to refuse to participate. The ethical considerations included explaining the purpose and nature of the study, stating the possibility to withdraw at any time, confidentiality of the Information where it was not accessed by any other party without taking permission of the participants. Ethics, values, culture and beliefs was respected.

Statistical Analysis:

The collected data was organized, categorized, tabulated, entered and analyzed by using SPSS (statistical package for social science), software program version 26. Statistical significance and association were assessed using the arithmetic mean, standard deviation (SD), chi-square (X^2) and p-value to detect the relation between variables of the standard. Statistical significance was considered at (P-value < 0.05).

Table (1): Frequency distribution of demographic data for patients with hepatic encephalopathy (n=60):

demographic data	No	%
Gender		
Male	27	45.0
Female	33	55.0
Age		
20 - <30	5	8.4
30 - <40	11	18.3
40 - <50	15	25.0
50 - ≤65	29	48.3
Mean ± SD	49.57±11.48	
Marital status		
Single	9	15.0
Married	33	55.0
Divorced	10	16.7
Widow	8	13.3
Level of education		
Illiterate	16	26.7
Basic education	25	41.6
Secondary	10	16.7
University	9	15.0
Occupation		
Not working	31	51.7
Working	29	48.3

*statistical significant p -value ≤ 0.05

Table (1) regarding patient's demographic data this table shows that about half of the studied patients were in age group 50:≤65 with mean age (49.57±11.48) respectively. More than half were females 55.0% respectively, added married 55.0%, educational level of patients 41.7% respectively completed basic education, occupation 51.7% were not working.

Table (2) Frequency distribution of medical data for the patients with hepatic encephalopathy (N=60).

Items	N	%
Past medical history		
Hypertension	39	65.0
Diabetes Mellitus	33	45.0
Non	13	21.7
Others	6	10.0
Hepatic Viral Infections		
Hepatitis C Virus	35	58.3
Hepatitis B Virus	9	15.0
Times of previous hospitalization due to hepatic encephalopathy		
Non	25	41.7
One time	20	33.3
Two times	9	15.0
Three times	6	10.0
Ascites	34	56.7
precipitating factors of hepatic encephalopathy		
GI bleeding	31	51.7
Electrolyte imbalance	29	48.3
Sepsis	20	33.3
Constipation	36	60.0
Dehydration	16	26.7
Others	5	8.3

*: Significant at $P \leq 0.05$

Table (2) shows that there were a high percentage of hypertension among studied patients 65% respectively and less than half had diabetes mellitus 45% respectively, added more than half having hepatitis c virus 58.3%.

The table also shows that more than third hadn't previous hospitalization due to hepatic encephalopathy and one third had a one-time previous hospitalization due to hepatic encephalopathy, more than half had ascites 56.7% respectively. regarding precipitating factors of hepatic encephalopathy 51.7% had a gastrointestinal bleeding, 48.3% had electrolyte imbalance and 60% had constipation.

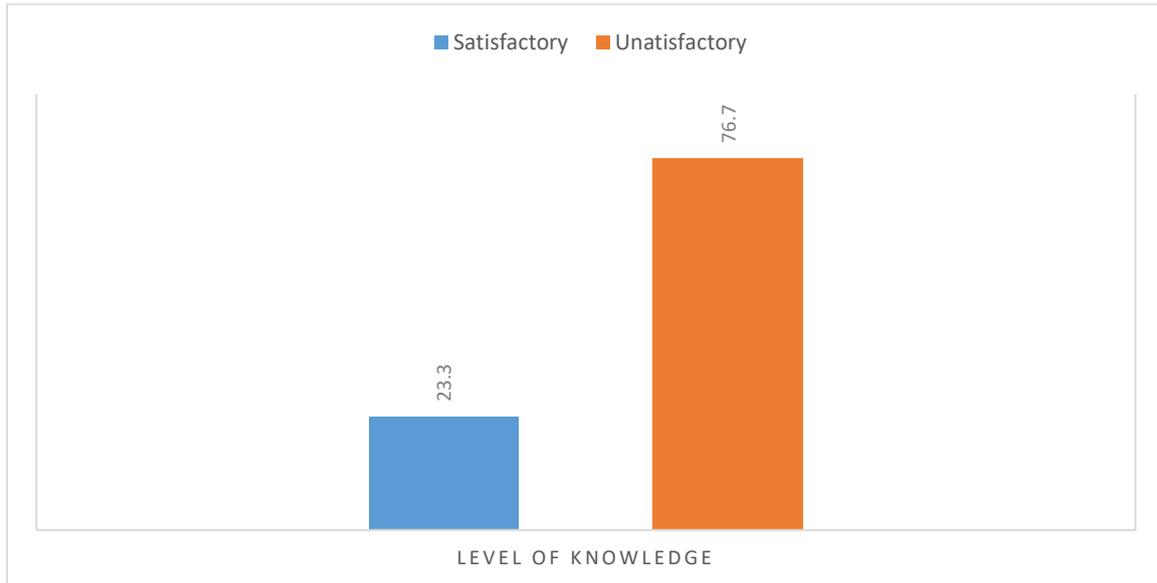


Figure (1): Distribution of total score of the studied patients' knowledge regarding hepatic encephalopathy

Figure (1) clarified that, more than three quarters (76.7%) of studied patients had unsatisfactory knowledge about hepatic encephalopathy, while the rest had satisfactory knowledge.

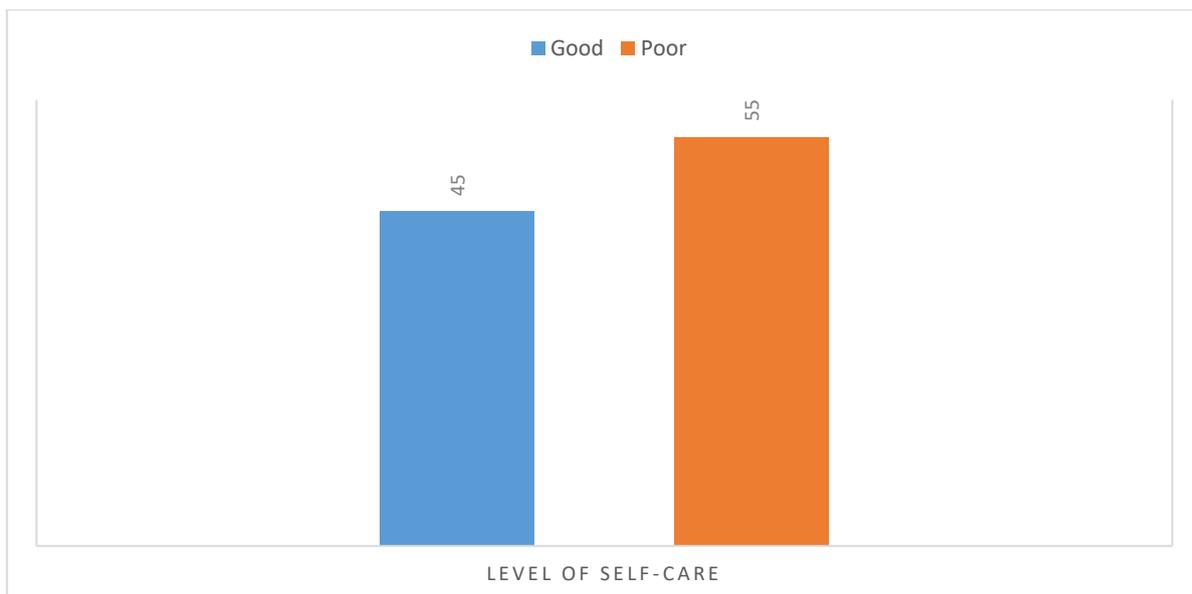


Figure (2): Distribution of the studied patients according to their total score of self-care regarding hepatic encephalopathy (n=60)

Figure (2) reveals that, more than half (55%) of studied patients had a poor level of self-care regarding hepatic encephalopathy. While, 45% of patients had a good level of self-care regarding hepatic encephalopathy.

Discussion:

Regarding patient's demographic data, about half of the studied patients were in age group $50 \leq 65$ with mean age (49.57 ± 11.48) respectively. This result in the same line with **sayed et al., (2014)** who studied "Impact of Immediate Nursing Care for Hepatic Encephalopathy Patients to Reduce Gastrointestinal Complication on Patient's Outcome in Intensive Care Unit at Main Assiut University Hospital in Egypt, and found that more than third of the studied patients were in age group $50 \leq 60$.

Concerning gender and marital status, the present study revealed that, more than half of the studied patient were females and married. This result in contrary with **Atya et al., (2019)** who studied "Effect of Nursing Teaching Guidelines Among Patients with Cirrhosis on Their Knowledge Regarding Minimizing Hepatic Encephalopathy in Egypt" who reported that more than half of the studied patient were male and the majority of them were married.

Regarding medical data, study findings revealed that more than half of studied patients had past medical history of diabetes mellitus. This could be as a result of insulin resistance promotes the breakdown of the muscles and production of ammonia. This explanation supported by **El-Alfy et al., (2019)** who conducted study "Diabetes as a Risk Factor Hepatic Encephalopathy among Egyptian Cirrhotic Patients" and reported that Egyptian diabetic patients have a potential risk of developing HE among cirrhotic liver patients relative to non-diabetic patients. Additionally, these patients usually are associated with diabetic gastropathy, which lead to chronic constipation. The sequent impact of such mechanisms is the massive increase in the amount of ammonia, and systemic inflammation, which reverberated dramatically in the development of HE. Moreover, diabetic patients suffered from excess gastric transient and orocecal period along with overgrowth of the intestinal bacteria and Glutaminase activity.

The study findings also noted that, more than half of studied patients had hypertension. This could be as a result of liver diseases increase the risk for developing hypertension by increasing vasoconstriction and decreasing vasodilation this explanation supported by **Zhao et al., (2020)** who conducted study "Nonalcoholic fatty liver disease: an emerging driver of hypertension" and reported that fatty liver considered as risk factor for developing hypertension by Initiating Systemic Inflammation, increasing oxidative Stress.

In relation to hepatic viral infections, our study findings reported that, more than half of studied patients had hepatitis C virus and less than one quarter had hepatitis B virus This could be as a result of viral hepatitis causes liver cells damage which alter liver function and lead to hepatic encephalopathy. This finding in line with **Peng et al., (2021)**. Who conducted study "Prediction and Risk Factors for Prognosis of Cirrhotic Patients with Hepatic Encephalopathy in china", and reported that more than half of hepatic encephalopathy patients had hepatitis C virus and little number of patients had hepatitis B virus.

Concerning Times of previous hospitalization due to hepatic encephalopathy, this study revealed that more than one third of the studied patients hadn't previous hospitalization due to hepatic encephalopathy and more than one quarter had one time of previous hospitalization due to hepatic encephalopathy. This could be as a result of exclusion of old age patients (>60 years) and patients with multiple system failure. This finding isn't in the same line with **Hafez, Abdallah & Hamad, (2020)** conducted a study "Assessment of Precipitating Factors and Outcomes of Hepatic Encephalopathy in Cirrhotic Patients in Egypt", and found that about three quarters of studied patients had thrice or more of Previous attack of hepatic encephalopathy.

In relation to precipitating factors of hepatic encephalopathy, the present study revealed that about

half of the studied patients had gastrointestinal bleeding. This could be as a result of gastrointestinal bleeding causes increased urea concentrations in patients with normal liver function and high ammonia concentrations in patients with impaired liver function. This ammoniogenesis may precipitate encephalopathy. This finding in line with **Sethuraman & Balasubramanian, (2019)** who studied “Clinical spectrum of precipitating factors of hepatic encephalopathy in cirrhosis of liver and its relation to prognosis in a tertiary care hospital-a retrospective study in India” and noted that about third of studied patients had developed hepatic encephalopathy due to GIT bleeding.

Another explanation for GIT bleeding as a risk factor for hepatic encephalopathy was clarified by **Aslam et al., (2015)** who studied “Upper Gastrointestinal Bleed, a Grave yet Precipitating Factor of Hepatic Encephalopathy in Cirrhotic patients in Pakistan” and noted that Acute upper gastrointestinal bleed especially due to gastroesophageal varices in patients of liver cirrhosis is associated with high morbidity and frequent development of life-threatening complications. Bleeding into intestinal tract may significantly increase the amount of protein in the bowel, resulting in increased ammonia production and precipitate rapid development of encephalopathy.

the present study findings also showed that about half of the studied patients had electrolyte imbalance as a risk factor for hepatic encephalopathy. This could be as a result of fluid imbalance either fluid loss due to diarrhea, vomiting and diuretics therapy, or excessive body fluid due to increased fluid intake or fluid retention. There is very little information regarding the clinical consequences of hyponatremia in patients with cirrhosis. However, **Hafez et al., (2020)** reported that hyponatremia may theoretically affect the osmotic balance in many cells, including brain cells, owing to a reduction in the osmolality of the extracellular fluid that would cause cell swelling because of a shift of water from

the extracellular to the intracellular compartment. The study finding also in line with **Kabir et al., (2018)** who also noted that electrolyte imbalance (hyponatremia and hypokalemia) were found to be a leading cause for hepatic encephalopathy which were very high.

The present study findings also revealed that about half of the studied patients had sepsis and infection as a risk factor for hepatic encephalopathy. This could be as a result of cerebral dysfunction induced by the systemic response to the infection this finding supported by **Merli & Riggio, (2015)** who studied “Interaction between infection and hepatic encephalopathy” and noted that the probability to find neurocognitive alterations increased from patients without infection to patients with infection and no systemic inflammatory response syndrome (SIRS) to those with sepsis. Efficaciously treated patients, in whom the infection subsided, improved their neurological symptoms. Both overt and covert hepatic encephalopathy were influenced by the presence of infection and by its resolution.

This explanation also reinforced by **Hafez et al., (2020)** who noted that infections are common among patients with liver cirrhosis. One reason for this phenomenon is bacterial translocation from the intestinal lumen that occurs as a consequence of intestinal bacterial overgrowth, increased permeability, and decreased motility. The most common infections in cirrhotic patients are spontaneous bacterial peritonitis (SBP) and urinary tract infections, followed by pneumonia, skin and soft tissue infections. Intestinal bacterial overgrowth is also responsible for hyperammonemia, which leads to HE

The present study also revealed that, constipation is a common risk factor for hepatic encephalopathy, as more than half of the studied patients had constipation. This could be as a result of lack of mobility, lack of fiber intake and poor follow-up for bowel condition. Constipation considered as a risk factor for hepatic

encephalopathy because it increases intestinal production and absorption of ammonia. This finding in line with **Abro et al., (2019)** who studied “Precipitating Factors of Hepatic Encephalopathy Experience at Shaheed Muhtarman Benazir Bhutto Medical University Larkana in Pakistan” and reported that, about half of the studied patients had constipation patients had as a risk factor for hepatic encephalopathy.

This finding in contrary with **Kabir et al., (2018)** who noted that constipation considered as a risk factor for hepatic encephalopathy patients, but constipation was the least in the list of precipitating factors (4%) in the study as isolated cause and also noted that it occurs due to dietary restriction, poverty, lack of use or inappropriate dosing of lactulose.

In this study, Dehydration also found as a risk factor for hepatic encephalopathy in more than one quarter of the studied patients, this could be as a result of electrolyte disturbance and hyperammonia. This result in line with **Sethuraman & Balasubramanian, (2019)** who studied “Clinical spectrum of precipitating factors of hepatic encephalopathy in cirrhosis of liver and its relation to prognosis in a tertiary care hospital-a retrospective study in India” and reported that Dehydration and infections were the most common precipitating factors for hepatic encephalopathy. This finding in contrary with **Kowo et al., (2019)** who studied “Clinical Aspects and Precipitating Factors of Hepatic Encephalopathy Associated with Cirrhosis in a Cameroonian Population” and didn't mentioned dehydration as a precipitating factor for hepatic encephalopathy

Regarding ascites, this study revealed that more than half of the studied patients had ascites. This could be as a result of the circulatory dysfunction in cirrhosis it considered the proposed pathophysiological mechanism leading to sodium and water retention in patients with liver cirrhosis. Hyper-dynamic circulation is triggered by increased intrahepatic resistance due to cirrhosis, leading

to a progressive increase in portal venous pressure. As portal hypertension worsens, local production of vasodilators increases due to endothelial activation, leading to splanchnic and systemic arterial vasodilation. This explanation supported with **Bendahmash, Elsiesty & Al-hamoudi, (2017)** who studied “Cirrhosis Ascites: Pathophysiological Changes and Clinical Implications”.

Pertaining to patients' knowledge regarding hepatic encephalopathy, its prevention and care, the findings of the present study revealed that the more than three quarters of studied patients had unsatisfactory knowledge. This finding could be as a result of patient's level of education that may be a factor as more than two thirds of patients had a basic education. Also this may be due to the lack of educational/teaching programs about hepatic encephalopathy and its prevention. This explanation supported by **Atya et al., (2019)** who stated the most of studied patients revealed a great lack of patient's knowledge as regard hepatic encephalopathy pre implementation of the nursing teaching guidelines, and noted that could be attributed to their formal education background that may be a factor as nearly two thirds of patients were illiterate. Also this lack of knowledge would be attributed to the lack of opportunity to be educated about hepatic encephalopathy prevention.

This finding also in the same line with **Saad et al., (2021)**. Who revealed that more than three quarters of the studied nurses have unsatisfactory level of total knowledge on pre-implementation of the designed program. This result coincides with **Vlaisavljevic, Rankovic, (2015)** who studied “Specific Nursing Care Rendered in Hepatic Encephalopathy: Contemporary Review and New Clinical Insights in Serbia” and stated that the majority of nurses in her study had unsatisfactory level of knowledge regarding hepatic encephalopathy.

The finding also noted that, more than half the studied patients showed a poor level of self-care, this also due to the lack of knowledge regarding hepatic encephalopathy.

This finding in the same line with **Dong et al., (2020)** who conducted a study about “Self-Management Behaviors Among Patients with Liver Cirrhosis in Shanghai, China: A Cross-Sectional Study” and stated that the self-management behaviors regarding liver cirrhosis mean score was 2.51 out of 4.

Conclusion

The study concluded that, more than three quarters of the studied patients had unsatisfactory knowledge regarding hepatic encephalopathy. Also, more than half of them had a poor self-care regarding hepatic encephalopathy.

Recommendations

Based on the previous findings, the following recommendation are suggested:

Distribution of a written teaching hand book for each hepatic patient in simplified term and containing simple pictures about preventive measures of hepatic encephalopathy to provide them with the needed information.

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