Early Nursing Preparation: its effect on knowledge and Anxiety level among Liver Cirrhotic Patients who undergoing Paracentesis

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Abstract: *While the patients are admitted to the hospital for performance a newly diagnostic or treated procedure such as paracentesis, the patients' anxiety will increase because the anxiety is a common response that occurs for the patients who encounter new event and they do not know what will happen. Therefore, effective managing of this response can speed up the positive outcomes periprocedure. The current study examines the effect of early nursing preparation on knowledge and anxiety level among liver cirrhotic patients who undergoing paracentesis. A quasi experimental research design was utilized. The current study was conducted at the liver institute of Menoufia University, Menoufia Governorate, Egypt. Subjects: A purposive sample of 100 adult patients of both sexes who were admitted to liver institute. Tools: two tools were utilized. Tool I: paracentesis patients needs assessment: structured interviewing scheduled questionnaire, consisted of the following: Part 1: sociodemographic and clinical data. Part II: paracentesis knowledge assessment sheet. Tool II: Hamilton anxiety rating scale 1998. Results: There was statistically significant improvement in knowledge related to early nursing preparation at 30 minutes before the procedure as well as after paracentesis procedure and reduction in anxiety level in study group more than control group in previous mentioned times. Conclusion: it can be concluded that, the early nursing preparation for paracentesis procedure improve patients' knowledge and reduced anxiety level. So the study recommended that the early nursing preparation for paracentesis should form an important concern for patients who performing the procedure that lead to reducing anxiety level and improve patients' knowledge.*
Keywords: *Nursing , Preparation, Anxiety, Liver cirrhosis, Paracentesis*

I. Introduction

Liver cirrhosis is a major public health problem worldwide . In Egypt, hepatic fibrosis and subsequently cirrhosis are believed to be a national problem. The Egyptian's liver has been struggling with many causative agents leading to its damage; of which, both hepatitis C-infection and bilharzial-infection are believed to be the two most outstanding causes of liver cirrhosis (Ali , 2012; Sanabria, etal., 2013).

Available studies indicated that liver cirrhosis developed in 4 % to 24% of persons after 20 years of infection with Hepatitis C virus (HCV). These estimates of liver cirrhosis risk are influenced strongly by the population studied and cohort recruitment methods. HCV is recognized as a major threat to global public health, especially in Egypt which has possibly the highest HCV prevalence in the world; 10% - 20% of the general populations are infected. HCV is the leading cause of liver cirrhosis in Egypt, Death rate of liver cirrhosis is 41.6% (Zaltron, etal. , 2012; WHO, 2004).

Liver cirrhosis is the 10th leading cause of death in the United State, and approximately 100,000 hospital discharges each year list chronic liver disease or cirrhosis as the primary diagnosis. Ascites is the most common complication of cirrhosis, and often paracentesis procedures are performed (Lefton , etal., 2009; Centers for Disease Control and Prevention, 2012; Gines , etal. , 2004).

Ascites is the most common of the three major complications of the liver cirrhosis, the other complications are hepatic encephalopathy and variceal hemorrhage. Approximately 50% of patients with "compensated" liver cirrhosis who without having developed one of these complications, develop ascites. But in decompensated liver cirrhosis, ascites is not only the most common complication but also the most common cause of hospital admissions. So ascites is the most common complication of cirrhosis that leads to hospital admission that confers poor prognosis with around 44% dying within 5 years. So appropriate management of ascites is the cornerstone in the overall care of a cirrhotic patient (Minino, etal. 2006; Lucena, etal., 2002).

One of the management of ascites is paracentesis that defined as a technique used to drain a pathological collection of ascetic fluid from the abdomen. During a paracentesis, a needle is inserted through the

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abdominal wall and into the peritoneum to remove fluid for diagnostic or therapeutic purposes. Indications include evaluation of an abdominal injury; removal of ascites which is causing difficulty breathing, pain, or affecting the function of the kidneys or bowel; prevention of peritoneal rupture; and diagnosis of infections in the peritoneal fluid (Huether, 2002).

A visit to a hospital can be a stressful experience for patients and can induce feelings of anxiety. Anxiety can be caused by a multitude of factors, including unfamiliar surroundings and noises as well as the feeling of loss of control and dependence on strangers. Besides these factors, perceived or actual risk of the medical procedure as well as uncertainty about the diagnosis and prognosis may provoke anxiety (Ulrich, etal. 2008).

Furthermore the main fear of a patient who knows that he will face an interventional procedure in a state of consciousness or with mild sedation is whether he will feel pain. Anxiety may also be related to the symptoms of an underlying disease, the lack of knowledge regarding a diagnosis, uncertainty of the chain of events to occur, and fear of unknown or unexpected findings (Schupp, etal, 2005).

Patient and family teaching is an important nursing role that may make the difference in the ability of the patient and family to adapt to chronic conditions. Well-informed, educated patients are more likely than uninformed patients to be concerned about their health and to do what is necessary to maintain it. They are also more likely to manage symptoms, recognize the onset of complications and seek health care early. Knowledge is the key to making informed choices and decisions during all phases of the chronic illness trajectory (Kocaman, et al., 2007).

The patient's health educational rights are increasingly being recognized as an important function in nursing practice and may at times be translated into a legal duty for nurse (Kozarek, etal., 1997). Rankin and Stallings (2001) reported that in order to participate knowledgable in decision making about their care such as patients need information about their condition and treatment, the health care takers have come to recognize this as indicated by American Hospital Association in patient's Bill of right related to the patient's right to information. Corkadel and Mc Glashen, (1983) added that the nurse bears the primary responsibility for assisting the patient to verbalize his | her educational needs and | or for the identification of additional informative needs since they have the most extensive contact with the patient.

Significance of the study

From the researchers clinical experiences as a clinical instructors and assistant lecturers as well as lecturers for clinical training to the students at Menoufia Liver Institute, it was observed that there was an increase numbers of patients who complained from liver disease and came from different places aimed to Menoufia Liver Institute for its specialty as well as it was considered as the earliest liver institute in the Menoufia Governorate. The majority of patients who undergoing paracentesis had anxiety and lack of knowledge related to the performance of this procedure. So the current study was carried out to generate attention and motivation for provision of appropriate nursing preparation to promote quality of care and stimulate researches in this area.

Aim of the Study
The aim of the current study evaluates the effect of early nursing preparation on knowledge and anxiety level among liver cirrhotic patients who undergoing paracentesis.
Operational definition
● Early nursing preparation: means providing information to the patients concerning to preparation of pre, care during and post paracentesis procedure.

Research Hypotheses
a. The study group subjects who exposed to the early preparation have more knowledge than control group subjects.
b. The study group subjects who exposed to the early preparation had less anxiety than control group subjects.
Subjects and Methods
Research Design:
A quasi experimental research design was utilized to achieve the aim of the current study.
Setting:
The present study was conducted at Outpatient Paracentesis Unit of Liver Institute, Menoufia University Hospital, Shebin El-Kom, Menoufia Governorate, Egypt.
Subjects:
A purposive sample of 100 adult patients of both sexes who were admitted to Outpatient Paracentesis Unit of Liver Institute and scheduled for paracentesis procedure was enrolled in the current study. They were divided

alternatively into two equal groups, study and control. 50 patients in each group. They were calculated based on the following power analysis:

Power Analysis: For Sample Size

The sample size assumes that the expected effect size is 6 and the standard deviation of outcome variable is 10. To achieve 80% power to detect this difference with a significance level of 0.05 by the equation:

$n = [(Z_{\alpha/2} + Z_\beta) 2 \times \{2(\acute{o}) 2\}]/ (\mu_1 - \mu_2) 2$. It is estimated that 46 subjects per group would be required with a withdrawal/non-evaluable subject rate of 10% a total of 50 per group subjects will be recruited leading to a total required sample size of 100 subjects.

Inclusion Criteria:

Subjects were eligible for the study if they had the following criteria:
- Adult and conscious patient.
- Both sexes.
- Age from 18- 60 years
- Patients undergoing procedures for the first time.
- Free from any psychiatric diseases.

Exclusion Criteria:
- Patients with previous paracentesis

Tools :

Two tools were utilized by the researchers to collect the necessary data. These tools were as following:

Tool I: Paracentesis Patients Needs Assessment: Structured Interviewing Scheduled Questionnaire. This tool was developed by the researchers based on the review of the relevant literature. It was used to determine the needed care for paracentesis patients. The tool consisted of the following two parts:

Part 1: Sociodemographic and clinical data: It was consisted of items related to patients' age, sex, marital status, educational level, occupation, duration of the medical diagnosis.

Part II: Paracentesis Knowledge Assessment Sheet. It composed of four sections, section 1: general information related to paracentesis with five questions including definition of paracentesis, indication, contraindication, laboratory tests that needed, and complications. Section 2: preparation before procedure: it was concerned with taking consent, voiding, body weight, measuring abdominal girth, and frequency of measuring vital signs. Section 3: care during procedure including position, site of insertion, preparation of puncture site, anesthesia, duration of the procedure, frequency of measuring blood pressure in addition to signs and symptoms of hypovolemia. Section four: care post procedure including assessment of puncture site, value of change position slowly, value of assessment of fluid removed, frequency of measuring vital signs, value of avoiding heavy lifting, and value of avoiding straining .

Scoring system:-

Each question in each section has three response categories and for data analysis the respondents answer as following:-
- Correct and complete answer was given a score of two.
- Correct and incomplete answer (partially correct answer) was given a score of one.
- Incorrect answer or don't know was given a score of zero.

The patient's responses in each section was calculated and recorded, then the total score of the patient's knowledge in each section was categorized into: A score of < 50% denoted poor or unsatisfactory results while a score of 50 % - 80% indicated fair results and a score ≥ 80% illustrated good or satisfactory results.

Tool II: Hamilton Anxiety Rating Scale: It is a rating scale developed by Hamilton (1998) and was translated and used by the researchers to quantify the severity of anxiety symptomatology. It consists of 14 items, each defined by a series of symptoms. These items were anxious mood, tension, fears, insomnia, intellectual, depressed mood, somatic complaints muscular, somatic complaints sensory, cardiovascular symptoms, respiratory symptoms, gastrointestinal symptoms, genitourinary symptoms, autonomic symptoms and behavior at interview.

Scoring system of the scale:

Each item is rated on a 5-point scale, ranging from zero to four in which zero denoted absence of anxiety, a score of one denoted mild, while a score of two denoted moderate, a score of three denoted severe and a score of four denoted very severe anxiety. All scores were summed to give a score ranged from zero to fifty six in which a score of zero to 15 indicated that the subject had mild anxiety, a score from 16 to 35 indicated that the subject had moderate anxiety and a score from 36 to 56 indicated that the subject had severe anxiety.

II. Method

●   Administrative Consideration: permission to conduct the study was obtained from the hospital authorities of Menoufia Liver Institute.

●   Ethical Consideration: the researchers initially introduced themselves to the patients who met the inclusion criteria, then explained the aim of the study as well as, they were assured that all collected data from them will be used only for the study's aim. The researchers emphasized also that the participation in the study is entirely voluntary and withdrawal from the study would not affect the care provided; anonymity and confidentiality were assured through coding the data. Finally a formal consent was obtained from the patients who were agree to participate in the study.

●   Tools Development the first tool was developed by the researchers after extensive review of the relevant literature and the second tool was developed by (Hamilton, 1998). Tool 1 was tested for content validity by five experts in the field of nursing specialty and three experts in the field of medical specialty. Modifications were done to ascertain relevance and completeness. Reliability of the tools, all tools was tested; by intra class correlation coefficient was used. It was 1.7 for tool I and 4.2 for tool II.

●   Pilot Study: a pilot study was conducted prior to data collection on 10 patients (10%) to test all tools for clarity, objectivity, relevance, feasibility and the applicability of the tools. Also, it was conducted to identify any problem associated with administering the tools and measure the time needed for data collection then the necessary modifications were carried out accordingly. Data included in the pilot study was excluded from the current study

●   Data Collection, it was extended from October 2017 to May 2018. The data were collected from both groups. The researcher assessed knowledge and anxiety level for both groups. Data collected from the control group firstly to prevent contamination of the study data. Participants of both groups were interviewed pre intervention using the tool I to identify patient's needs.

●   The study was conducted in four phases namely: assessment, planning, implementation and evaluation.

a) Assessment phase: base line assessment of patient's sociodemographic data and knowledge about preparation for paracentesis procedure was performed using tool (I). Also patients of all groups were assessed for anxiety level using tool (II).

b) Planning phase: the researchers went through extensive literature review to prepare an educational knowledge about paracentesis preparation for patients who undergoing newly paracentesis based on needs identified in assessment phase. Experts in nursing and medical fields in general and medical management were sought to ensure content comprehensiveness, clarity, relevancy and applicability colored booklet.

c) Implementation phase: after the assessment, the patients in the control group received only routine hospital care. While the patients in the study group received the knowledgably nursing preparation by the researchers in addition to the routine hospital care. The researchers interviewed with patients for three sessions, each one take 30 to 40 minutes.

o   In first session on the day of registration. The researchers gave knowledge and teaching about general information about paracentesis as well as preparation pre, care during and post paracentesis procedure through reading information in the booklet with colored pictures. The researchers provide each participant of the study group with a written pamphlet and explanation about section 1: general information related to paracentesis with five questions including definition of paracentesis, indication, contraindication, laboratory tests that needed, and complications. Section 2: preparation before procedure: it was concerned with taking consent, voiding, body weight, abdominal girth, and frequency of measuring vital signs. Section 3: care during procedure including position, site of insertion, preparation of puncture site, anesthesia, duration of the procedure, frequency of measuring blood pressure in addition to signs and symptoms of hypovolemia. Section four: care post procedure including assessment of puncture site, value of change position slowly, value of assessment of fluid removed, frequency of measuring vital signs, value of avoiding heavy lifting, as well as value of avoiding straining .

o   Second session before 30 minutes of implementing the procedure, the researchers assess knowledge and anxiety level for both study and control groups.

o   Third session done at post paracentesis procedure to evaluate patient knowledge and assess the anxiety level.

d)   Evaluation Phase: each patient of the study and control group was evaluated three times; the first evaluation in the assessment phase using tools I and II. The second evaluation was done 30 minutes before the procedure and the third evaluation was done post procedure to identify knowledge and anxiety level before the procedure and post knowledge preparation by using tool I and tool II.

Statistical Analysis

Data were collected, tabulated, statistically analyzed using an IBM personal computer with Statistical Package of Social Science (SPSS) version 17 where the following statistics were applied.

a- Descriptive statistics: in which quantitative data were presented in the form of mean ( ), standard deviation (SD) and qualitative data were presented in the form numbers (No) and percentages (%).

b- Analytical statistics: The used tests of significance included:

- Student t-test is a test of significance used for comparison between two groups having quantitative variables

● P value of >0.05 was considered statistically non-significant

● P value of <0.05 was considered statistically significant

● P value of <0.001 was considered statistically highly significant

Table (1): Distribution of both study and control groups according to their sociodemographic characteristics.

Sociodemographic characteristics	Study group (n=50)		Control group (n=50)		χ^2 test	P value
	No	%	No	%		
Age (years):						
≤40 ◆	15	30.0	18	36.0	.044	.834
≥40 ◆	35	70.0	32	64.0		NS
Mean±SD	45.00± 10.41		45.42± 10.78		.198	NS
Sex :						
Male ◆	27	54.0	26	52.0	.040	.841
Female ◆	23	46.0	24	48.0		NS
Social status:						
Single ◆	2	4.0	3	6.0	.551	0.908
Married ◆	40	80.0	37	74.0		NS
Widow ◆	5	10.0	6	12.0		
divorced ◆	3	6.0	4	8.0		
Levels of education :						
Illiterate ◆	8	16.0	9	18.0		.995
Read & write ◆	23	46.0	24	48.0	.210	NS
Primary education ◆	2	4.0	2	4.0		
Secondary level ◆	10	20.0	9	18.0		
University ◆	7	14.0	6	12.0		
Occupation:						
Worker ◆	8	16.0	9	18.0	.423	.935
Farmer ◆	25	50.0	23	46.0		NS
Employees ◆	8	16.0	10	20.0		
House wife &not working ◆	9	18.0	8	16.0		
Duration of disease						
≤ one month ◆	8	16.0	3	6.0	.252	.969
One month ◆	5	10.0	5	10.0		NS
6 month ◆	16	32.0	15	30.0		
≥ one year ◆	25	50.0	27	54.0		

Table (1) Illustrated the distribution of both study and control groups according to their sociodemographic characteristics.

It was evident that (70%) of the study group was ≥ 40years with a mean age (45.00 ±10.41) years as compared to (64%) of the control group with a mean age (45.42 ±10.78) years. More than half (54%) of the study group as compared to (52%) of the control group were male. Also it was observed that the majority (80%) of the study group and (74%) of the control group were married. Regarding the level of education, about half (46%) of the study group as compared to (48%) of the control group were read & write, while (20%) of the study group and (18%) of the control group had secondary education. Regarding to occupation, half (50%) of the study group and (46%) of the control group were farmer concerning to duration of disease, half (50%) of the study group and (54%) of the control group were one year and more. There is no statistical significant differences were seen between both groups in relation to above mentioned sociodemographic characteristics.

Table (2): Distribution of both study and control groups as regards to patient's knowledge about general information related to Paracentesis procedure at 3 times interval (pre intervention, 30 minutes before the procedure and post procedure)

Group / Variables	Pre intervention				30 minutes before the procedure				post procedure			
	Study group (n=50)		Control group (n=50)		Study group (n=50)		Control group (n=50)		Study group (n=50)		Control group (n=50)	
	No	%	No	%	No	%	No	%	No	%	No	%
Definition of paracentesis:												
Incorrect answer or don't know	27	54.0	25	50.0	4	8.0	22	44.0	3	6.0	20	40.0
Correct and incomplete	15	30.0	15	30.0	12	24.0	17	34.0	8	16.0	17	34.0
Correct and complete	8	16.0	10	20.0	34	68.0	11	22.0	39	78.0	13	26.0
χ^2	.585				23.36.00				29.13			
P value	.746 NS				< 0.001 HS				< 0.001 HS			
Indications of paracentesis :												
Incorrect answer or don't know	25	50.0	24	48.0	3	8.0	22	44.0	2	4.0	20	40.0
Correct and incomplete	18	36.0	17	34.0	8	40.0	18	36.0	7	14.0	19	38.0
Correct and complete	7	14.0	9	18.0	39	52.0	10	20.0	41	82.0	11	22.0
χ^2	0.299				35.449				37.57			
P value	0.806 NS				< 0.001 HS				< 0.001 HS			
Contraindications of paracentesis	37	74.0	35	70.0	4	8.0	34	68.0	3	6.0	33	66.0
Incorrect answer or don't know	7	16.0	8	16.0	8	16.0	9	18.0	5	10.0	8	16.0
Correct and incomplete	6	14.0	7	14.0	38	76.0	7	14.0	42	84.0	9	18.0
Correct and complete												
χ^2	0.199				47.97				52.116			
P value	0.905 NS				< 0.001 HS				< 0.001 HS			
Laboratory tests that needed												
Incorrect answer	30	60.0	32	64.0	6	12.0	30	60.0	2	4.0	30	60.0
Correct and incomplete	13	26.0	10	20.0	6	12.0	12	24.0	4	8.0	14	28.0
Correct and complete	7	14.0	8	16.0	38	76.0	8	16.0	44	88.0	6	12.0
χ^2	1.62				38.46				58.936			
P value	0.20 NS				< 0.001 HS				< 0.001 HS			
Complications of paracentesis:												
Incorrect answer or don't know	28	56.0	30	60.0	3	6.0	8	56.0	2	4.0	28	56.0
Correct and incomplete	19	38.0	18	36.0	7	14.0	19	38.0	5	10.0	18	36.0
Correct and complete	3	6.0	2	4.0	40	80.0	3	6.0	43	86.0	4	8.0
χ^2	0.296				57.537				62.243			
P value	0.862 NS				< 0.001 HS				< 0.001 HS			
Total score categories:												
Poor (< 50%) = < 5	34	68.0	37	74.0	5	10.0	35	70.0	3	6.0	34	68.0
Fair (50-< 80%) = 5-<8	6	12.0	4	8.0	6	12.0	7	14.0	6	12.0	9	18.0
Good (≥ 80 %) ≥ 8	10	20.0	9	18.0	39	78.0	8	16.0	41	82.0	7	14.0
χ^2	.713				46.47				52.64			
P value	0.176 NS				< 0.001 HS				< 0.001 HS			
Total score of knowledge (score=10):												
Mean±SD	2.84 ±3.559		2.76 ± 3.384		8.34 ±3.34		3.00±3.416		8.9±2.48		3.2±3.43	
Student t test	.115				9.263				11.65			
P value	0.678 NS				< 0.001 HS				< 0.001 HS			

P value: NS= non-significant   HS= highly significant

Table (2) illustrated distribution of both study and control groups as regards to patient's knowledge about general information related to paracentesis at 3 times interval (pre intervention, 30 minutes before the procedure and post procedure)

It was cleared that, (54%) of the study group and (50%) of the control group had incorrect answer regarding definition of paracentesis. Also half (50.0%) of the study group and (48.0%) of the control group had incorrect answer regarding indications of paracentesis pre intervention respectively. Regarding Contraindications of paracentesis, more than two third (74.0%) of the study group and (70.0%) of the control group had incorrect answer pre intervention. Two third (60%) of the study group as compared to (64%) of the control group had incorrect answer about laboratory tests used before paracentesis respectively. As regards to patient's knowledge about complications of paracentesis, more than half (56.0%) of the study group and two thirds (60.0%) of the control group had incorrect answer pre intervention respectively. Also there was an improvement of a mean total knowledge score among study group (2.84 ±3.559 to become 8.34 ±3.34 at 30 minutes before the procedure and 8.9±2.48 post paracentesis) than control group at 30 minutes before the procedure and post paracentesis procedure. There was a highly statistical significant improvement of a mean total knowledge score regarding knowledge about general information related to paracentesis as a procedure, of the study group than control group at 30 minutes before the procedure and post paracentesis procedure, with P value (< 0.001).

Table (3): Distribution of both study and control groups as regards to patient's knowledge about preparations of paracentesis before procedure at 3 times interval (pre intervention, 30 minutes before the procedure and post procedure)

Group Variables	Pre intervention				30 minutes before the procedure				post procedure			
	Study group (n=50)		Control group (n=50)		Study group (n=50)		Control group (n=50)		Study group (n=50)		Control group (n=50)	
	No	%	No	%	No	%	No	%	No	%	No	%
knowledge about preparations of Paracentesis before procedure: **Consent -1**												
Incorrect answer or don't know ●	29	58.0	28	56.0	4	8.0	26	52.0	1	2.0	26	52.0
Correct and incomplete ●	12	24.0	14	28.0	8	16.0	16	32.0	3	6.0	16	32.0
Correct and complete ●	9	18.0	8	16.0	38	76.0	8	16.0	46	92.0	8	16.0
χ^2	.230				38.36.00				58.78			
P value	.891 NS				< 0.001 HS				< 0.001 HS			
2-Voiding :												
Incorrect answer or don't know ●	38	76.0	37	74.0	3	6.0	35	70.0	2	4.0	33	66.0
Correct and incomplete ●	9	18.0	8	16.0	6	12.0	10	20.0	3	6.0	11	22.0
Correct and complete ●	3	6.0	5	10.0	41	82.0	5	10.0	45	90.0	6	12.0
χ^2	0.572				56.12				64.85			
P value	0.751 NS				< 0.001 HS				< 0.001 HS			
3-Body weight												
Incorrect answer or don't know ●	33	66.0	33	66.0	6	12.0	31	62.0	3	6.0	31	62.0
Correct and incomplete ●	10	20.0	11	22.0	8	16.0	11	22.0	5	10.0	11	22.0
Correct and complete ●	7	14.0	6	12.0	36	72.0	8	16.0	42	84.0	8	16.0
χ^2	0.000				30.19				53.61			
P value	1.000 NS				< 0.001 HS				< 0.001 HS			
4-Abdominal girth												
Incorrect answer or don't know ●	35	70.0	34	68.0	7	14.0	32	64.0	2	4.0	30	60.0
Correct and incomplete ●	10	20.0	10	20.0	9	18.0	12	24.0	4	8.0	14	28.0
Correct and complete ●	5	10.0	6	12.0	34	68.0	6	12.0	44	88.0	6	12.0
χ^2	.197				36.054				58.63			
P value	0.906 NS				< 0.001 HS				< 0.001 HS			
5- Vital signs :												
Incorrect answer or don't know ●	30	60.0	30	60.0	5	10.0	28	56.0	2	4.0	28	56.0
Correct and incomplete ●	11	22.0	12	24.0	9	18.0	14	28.0	4	8.0	14	28.0
Correct and complete ●	9	18.0	8	16.0	36	72.0	8	16.0	44	88.0	8	16.0
χ^2	0.400				34.935				53.012			
P value	0.819 NS				< 0.001 HS				< 0.001 HS			

Total score of knowledge (score=10): **Mean ±SD**	2.40 ±3.452		2.54 ± 3.592		8.20 ±3.149		2.72±3.551		9.2±2.28		2.74±3.47	
Student t test **P value**	.115 0.678 NS				8.163 < 0.001 HS				11.085 < 0.001 HS			
Total score categories:												
Poor (< 50%) = < 5	38	76.0	36	72.0	5	10.0	35	70.0	3	6.0	34	68.0
Fair (50-< 80%) = 5-<8	3	6.0	5	10.0	6	12.0	7	14.0	6	12.0	9	18.0
Good (≥ 80 %) ≥ 8	9	18.0	9	18.0	39	78.0	8	16.0	41	82.0	7	14.0
χ^2 P value	.060 0.623 NS				47.13 < 0.001 HS				63.099 < 0.001 HS			

P value: NS= non-significant   HS= highly significant

Table (3) illustrated distribution of both study and control groups as regards to patient's knowledge about preparations of paracentesis before procedure at 3 times interval (pre intervention, 30 minutes before the procedure and post procedure)

It was revealed that, (58%) of the study group and (56%) of the control don't know that consent must be taken before paracentesis. Also the majority (76.0%) of the study group and (74.0%) of the control group don't know that they must be voided immediately before paracentesis | pre intervention respectively. Regarding body weight, equal percent (66.0%) of the study group and control group don't know that their bodies should be weighed before paracentesis pre intervention. More than two third (70%) of the study group as compared to (68%) of the control group don't know that their abdominal girth must be measured before paracentesis pre intervention. As regards to patient's knowledge about measuring vital signs before paracentesis equal percent (60.0%) of the study group and control group had incorrect answer pre intervention. Also there was an improvement of a mean total knowledge score among study group (2.40 ±3.45 to become 8.20 ±3.59 at 30 minutes before the procedure and 9.2±2.28 post procedure) than control group at previous mentioned times. There was a highly statistical significant improvement of a mean total knowledge score regarding knowledge about preparations of paracentesis before procedure, of the study group than control group at 30 minutes before the procedure and post paracentesis procedure, with P value (< 0.001).

Table (4): Distribution of both study and control groups as regards to patient's knowledge about care during procedure at 3 times interval (pre intervention, 30 minutes before the procedure and post procedure)

Group Variables	Pre intervention				30 minutes before the procedure				post procedure			
	Study group (n=50)		Control group (n=50)		Study group (n=50)		Control group (n=50)		Study group (n=50)		Control group (n=50)	
	No	%	No	%	No	%	No	%	No	%	No	%
Patient knowledge during procedure of Paracentesis:												
1-Position during procedure												
Incorrect answer or don't know	34	68.0	32	64.0	4	8.0	29	48.0	0	.00	29	58.0
Correct and incomplete	11	22.0	13	26.0	5	10.0	14	28.0	2	4.0	12	24.0
Correct and complete	5	10.0	5	10.0	41	82.0	7	14.0	48	96.0	9	18.0
χ^2	.227				47.28.00				62.82			
P value	.893 NS				< 0.001 HS				< 0.001 HS			
2-Site of insertion :												
Incorrect answer or don't know	30	60.0	32	64.0	3	6.0	30	60.0	1	2.0	28	56.0
Correct and incomplete	12	24.0	11	22.0	8	16.0	11	22.0	1	2.0	13	26.0
Correct and complete	8	16.0	7	14.0	39	78.0	9	18.0	48	96.0	9	18.0
χ^2	0.175				41.31				62.108			
P value	0.915 NS				< 0.001 HS				< 0.001 HS			
3-Preparation of puncture site												
Incorrect answer or don't know	30	0.0	31	62.0	4	8.0	31	62.0	2	4.0	29	58.0
Correct and incomplete	10	20.0	10	20.0	8	16.0	9	18.0	3	6.0	11	22.0
Correct and complete	10	20.0	9	18.0	38	76.0	10	20.0	45	90.0	10	20.0
χ^2												
P value	0.069				37.22				50.36			
	.966 NS				< 0.001 HS				< 0.001 HS			
4-Anaesthesia												
Incorrect answer or don't know	38	76.0	36	72.0	6	12.0	32	64.0	3	6.0	31	62.0
Correct and incomplete	8	16.0	8	16.0	7	14.0	12	24.0	2	4.0	13	26.0
Correct and complete	4	8.0	6	12.0	37	74.0	6	12.0	45	90.0	6	12.0
χ^2	.454				41.45				52.39			
P value	0.797 NS				< 0.001 HS				< 0.001 HS			
5- duration of procedure :												
Incorrect answer or don't know	29	58.0	30	60.0	4	8.0	28	56.0	2	4.0	28	56.0
Correct and incomplete	12	24.0	12	24.0	9	18.0	13	26.0	1	2.0	14	28.0
Correct and complete	9	18.0	8	16.0	37	74.0	9	18.0	47	94.0	8	16.0
χ^2	0.076				35.77				61.45			
P value	0.963 NS				< 0.001 HS				< 0.001 HS			
6- Blood pressure:												
Incorrect answer or don't know	27	54.0	29	58.0	6	12.0	28	56.0	2	4.0	27	54.0
Correct and incomplete	14	28.0	13	26.0	9	18.0	14	28.0	3	6.0	13	26.0
Correct and complete	9	18.0	8	16.0	35	70.0	8	16.0	45	90.0	10	20.0
χ^2	0.371				32.79				50.074			
P value	0.831 NS				< 0.001 HS				< 0.001 HS			
7- Signs and symptoms of hypovolemia												
Incorrect answer or don't know	37	72.0	36	72.0	5	10.0	34	68.0	5	10.0	32	64.0
Correct and incomplete	8	16.0	10	20.0	9	18.0	11	22.0	5	10.0	13	26.0
Correct and complete	5	10.0	4	8.0	36	72.0	5	10.0	40	80.0	5	10.0
χ^2	0.347				42.26				50.48			
P value	0.841 NS				< 0.001 HS				< 0.001 HS			
Total score of knowledge (score=14): Mean±SD	3.54 ±4.86		3.38± 4.83		11.62 ±4.33		3.94±5.19		13.06±2.75		5.16 ± 5.01	
Student t test P value	.165				8.031				9.753			
	0.878 NS				< 0.001 HS				< 0.001 HS			
Total score categories:												
Poor (< 50%) = < 7	38	76.0	36	72.0	6	12.0	33	66.0	2	4.0	28	560
Fair (50-< 80%) = 7-<11	4	8.0	8	16.0	7	14.0	9	18.0	3	6.0	12	24.0
Good (≥ 80 %) = ≥11	8	16.0	6	12.0	37	74.0	8	16.0	45	90.0	10	10.0
χ^2	.253				47.13				68.85			
P value	0.590 NS				< 0.001 HS				< 0.001 HS			

P value: NS= non-significant   HS= highly significant

Table (4) illustrated distribution of both study and control groups as regards to patient's knowledge about care during procedure at 3 times interval (pre intervention, 30 minutes before the procedure and post procedure).

It was cleared that, (68%) of the study group and (64%) of the control group had incorrect answer regarding patient's position during procedure. Also (60.0%) of the study group and (64.0%) of the control group had incorrect answer regarding to site of insertion pre intervention respectively. Regarding preparation of puncture site, (60.0%) of the study group and (62.0%) of the control group had incorrect answer pre intervention. The majority (76%) of the study group as compared to (72%) of the control group had incorrect answer about anesthesia given during procedure pre intervention respectively. As regards to patient's knowledge about duration of paracentesis, about two thirds (58.0%) of the study group and (60.0%) of the control group had incorrect answer pre intervention respectively. Also more than half (54.0%) of the study group and (58.0%) of the control group had incorrect answer about continuous measuring of blood pressure pre intervention. Concerning to patient's knowledge about signs and symptoms of hypovolemia during procedure 74.0% of the study group and 72% of control group had incorrect answer pre intervention respectively.

Also there was an improvement of a mean total knowledge score among study group (3.54 ±4.86 to become 11.62 ±4.33 at 30 minutes before the procedure and 13.02±2.75 post paracentesis procedure) than control group at previous mentioned times. There was a highly statistical significant improvement of a mean total knowledge score regarding knowledge about care during paracentesis, in the study group than control group at 30 minutes before the procedure and post paracentesis procedure, with P value (< 0.001).

Table (5): Distribution of both study and control groups as regards to patient's knowledge about care given after procedure of paracentesis at 3 times interval (pre intervention, 30 minutes before the procedure and post procedure)

Group Variables	Pre intervention				30 minutes before the procedure				Post procedure			
	Study group (n=50)		Control group (n=50)		Study group (n=50)		Control group (n=50)		Study group (n=50)		Control group (n=50)	
	No	%	No	%	No	%	No	%	No	%	No	%
Patient knowledge about care after procedure of Paracentesis:												
1-Assessment of puncture site												
Incorrect answer or don't know	34	68.0	32	64.0	4	8.0	29	48.0	0	0.00	29	49.0
Correct and incomplete	11	22.0	13	26.0	5	10.0	14	28.0	2	6.0	12	24.0
Correct and complete	5	10.0	5	10.0	41	82.0	7	14.0	48	96.0	9	18.0
χ^2	.227				47.28.00				62.82			
P value	.893 NS				<0.001 HS				<0.001 HS			
2- Value of change position slowly after paracentesis:												
Incorrect answer or don't know	30	60.0	32	64.0	3	6.0	30	60.0	1	2.0	28	56.0
Correct and incomplete	12	24.0	11	22.0	8	16.0	11	22.0	1	2.0	13	26.0
Correct and complete	8	16.0	7	14.0	39	78.0	9	18.0	48	96.0	9	18.0
χ^2	0.175				41.3				62.108			
P value	0.915 NS				<0.001 HS				<0.001 HS			
3- Value of assessment of fluid removed												
Incorrect answer or don't know	30	60.0	31	62.0	4	8.0	31	62.0	2	4.0	29	58.0
Correct and incomplete	10	20.0	10	20.0	8	16.0	9	18.0	3	6.0	11	22.0
Correct and complete	10	20.0	9	18.0	38	76.0	10	20.0	45	90.0	10	20.0
χ^2	0.069				37.22				50.36			
P value	966 NS				<0.001 HS				<0.001 HS			
4- Frequency of vital signs												
Incorrect answer or don't know	38	76.0	36	72.0	6	12.0	32	64.0	3	6.0	31	62.0
Correct and incomplete	8	16.0	8	16.0	7	14.0	12	24.0	2	4.0	13	26.0
Correct and complete	4	8.0	6	12.0	37	74.0	6	12.0	45	90.0	6	12.0
χ^2	.454				41.45				52.39			
P value	0.797 NS				<0.001 HS				<0.001 HS			
5- Value of avoiding heavy lifting:												
Incorrect answer or don't know	29	58.0	30	60.0	4	8.0	28	56.0	2	4.0	28	56.0
Correct and incomplete	12	24.0	12	24.0	9	18.0	13	26.0	1	2.0	14	28.0
Correct and complete	9	18.0	8	16.0	37	74.0	9	18.0	47	94.0	8	16.0
χ^2	0.076				35.77				61.45			
P value	0.963 NS				<0.001 HS				<0.001 HS			
6- Value of avoiding straining												
Incorrect answer or don't know	27	54.0	29	58.0	6	12.0	28	56.0	2	4.0	27	54.0
Correct and incomplete	14	28.0	13	26.0	9	18.0	14	28.0	3	6.0	13	26.0
Correct and complete	9	18.0	8	16.0	35	70.0	8	16.0	45	90.0	10	20.0
χ^2	0.371				32.79				50.074			
P value	0.831 NS				<0.001 HS				<0.001 HS			
Total score of knowledge (score=12): Mean±SD	3.54 ±4.86		3.38± 4.83		11.62 ±4.33		3.94±5.19		11.32±2.325		3.64 ±4.49	

	Pre				30 min				Post			
Student t test / **P value**	.165 / 0878 NS				8.031 / <0.001 HS				10.72 / <0.001 HS			
Total score categories:												
Poor (<50%)=<6	38	76.0	36	72.0	6	12.0	33	66.0	2	4.0	32	64.0
Fair (50-<80%) = 6 -<10	4	8.0	8	16.0	7	14.0	9	18.0	3	6.0	9	18.0
Good (≥ 80 %) ≥ 10	8	16.0	6	12.0	37	74.0	8	16.0	45	90.0	9	18.0
χ^2 / **P value**	.253 / 0.590 NS				47.13 / <0.001 HS				71.82 / <0.001 HS			

P value: NS= non-significant   HS= highly significant

Table (5): illustrated distribution of both study and control groups as regards to patient's knowledge about care after paracentesis at 3 times interval (pre intervention, 30 minutes before the procedure and post procedure).

It was cleared that, (68%) of the study group and (64%) of the control group had incorrect answer regarding value of assessment of puncture site after procedure of paracentesis. Also (60.0%) of the study group and (64.0%) of the control group had incorrect answer regarding value of change position slowly after paracentesis pre intervention respectively. Concerning to value of assessment of fluid removed after of paracentesis, 60.0% of the study group and 62.0% of the control group had incorrect answer pre intervention. Also the majority (76%) of the study group as compared to (72%) of the control group had incorrect answer used about frequency of measuring vital signs after paracentesis pre intervention respectively. As regards to patient's knowledge about value of avoiding heavy lifting after paracentesis, more than half (58.0%) of the study group and about two thirds (60.0%) of the control group had incorrect answer pre intervention respectively. Also (54%) of the study group as compared to (58%) of the control group had incorrect answer about value of avoiding straining after paracentesis pre intervention respectively. Also there was an improvement of a mean total knowledge score among study group (3.54 ±4.86to become 11.62 ±4.33at 30 minutes before the procedure and 11.32±2.32 post paracentesis) than control group at previous mentioned times. There was a highly statistical significant improvement of a mean total knowledge score regarding knowledge about care after paracentesis procedure in the study group than control group at 30 minutes before the procedure and post paracentesis procedure, with P value (< 0.001).

Table (6): Distribution of anxiety among study and control groups at 3 times interval (pre intervention, 30 minutes before the procedure and post procedure)

Group / Variables	Pre intervention				30 minutes before the procedure				Post procedure			
	Study group (n=50)		Control group (n=50)		Study group (n=50)		Control group (n=50)		Study group (n=50)		Control group (n=50)	
	No	%	No	%	No	%	No	%	No	%	No	%
Anxiety level:												
Mild (0-15) ●	6	12.0	6	12.0	25	50.0	7	14.0	40	80.0	8	16.0
Moderate (16-35) ●	19	38.0	21	42.0	17	34.0	21	42.0	6	12.0	19	38.0
Sever (36-56) ●	25	50.0	23	46.0	8	16.0	22	44.0	4	8.0	23	46.0
χ^2 / **P value**	.186 / .911 NS				17.07.00 / <0.001 HS				41.46 / <0.001 HS			
Total score of anxiety(score=56): Mean± SD	32.50±13.08		32.10±13.39		19.12±10.31		31.32±11.62		13.52±9.324		32.06 ± 10.86	
Student t test / **P value**	.151 / 0862 NS				8.031 / <0.001 HS				10.72 / <0.001 HS			

Table (6) illustrated distribution of anxiety among study and control groups at 3 times interval (pre intervention, 30 minutes before the procedure and post procedure). This table showed that no statistical significant differences were found between study and control group regarding anxiety level pre intervention at p values = 0.186. However, there were statistical significant differences were existed between study and control group regarding the anxiety level at 30 minutes before the procedure and post procedure, with P values (< 0.001).

III. Discussion

Invasive medical procedures such as paracentesis are a stressful procedure that leads to increase patient's anxiety level. The best intervention to reduce anxiety is to inform patient with adequate knowledge about the procedure, so this study aimed to determine the effect of early nursing preparation on anxiety level

among patients who undergoing paracentesis. The result of the current study verifying the hypotheses and showed that there was significant improvement of knowledge and reduction of anxiety level among study group than control group in patients who undergoing paracentesis.

Regarding sociodemographic characteristic of studied groups: -

The current study findings showed that 70% of the study group was ≥ 40 years with a mean age (45.00 ±10.41) years as compared to 64% of the control group with a mean age (45.42 ±10.78) years. And more than half of the study group and control group were male. The results agreed with Buczko (2001), Vanderplas, et al., (2003), Smith (2004); and Dataller and Gines (2009) who mentioned that; liver cirrhosis is as twice as common in men than in women. This result disagreed with Khalil, etal., (2015) who reported that the majority of the patients were females with in fifties years old.

As regards to the marital status, the majority (80%) of the study group and (74%) of the control group were married. This result agreed with Khalil, etal., (2015) who illustrated that the majority of the patients were married. Concerning to the level of education, about half of the study group and control group were read and write. This shows that the efforts and role of country to diminish numbers of illitericited people. This finding is not consistent with Sallam (2007) who reported that; more than half of the study patients were illiterate and according to the study which was carried out by Vanderplas, et al., (2003) on a number of cirrhotic liver patients, it revealed that the majority of the sample had secondary education, this result disagreed with the present study which may be due to the different nature of the study population.

Regarding to occupation, the present study revealed that, the majority of the study group and control group were farmers who contact with canal water and in turn lived in rural areas. This result was supported by Rao, et al., (2002) and Vanderplas, et al., (2003), who had the study which was carried out on a number of cirrhotic liver patients in Egypt, and reported that the majority of the sample were working as farmers which put them at high risk for developing schistosomal infection and the majority of the patient were married. Likewise the result agreed with Rao, et al., (2002) who reported that; in Egypt, liver cirrhosis was more common in rural than urban regions because rural regions presented a suitable environment for developing a schistosomal infection due to exposure to canal water that may be polluted by snails that harbor the schistosomal parasite. Likewise, Abd el Ghaffar (2004) added that in Egypt, liver cirrhosis with or without chronic active hepatitis constituted about 50% of all chronic liver diseases that met within Egypt and even higher percentage in rural Egypt. This means that cirrhosis is the commonest chronic liver disease in the country.

Regarding Knowledge assessment among study and control group pre and post preparation as well as anxiety level:

The current study showed that most of studied sample in study and control group had poor knowledge related paracentesis pre knowledge preparation, while more than half of study group had a good knowledge than control group 30 minutes before the procedure and after procedure. As well as improve knowledge score among the study group than control group at 30 minutes before the procedure and after procedure. These results affect anxiety level and decreases anxiety among the study group.

The researchers explained that good preparation by providing adequate knowledge to patient before invasive medical procedure as paracentesis enhances patients' understanding and awareness about procedure.

The present study illustrated that the most of studied sample (both study and control group) had severe level of anxiety before knowledge preparation, while the majority of participants in the study group had mild level of anxiety at 30 minutes before the procedure of knowledge and after procedure regarding paracentesis procedure than control group. In addition to mean anxiety level was decreased in study group rather than control group post preparation. These results support by Elsay et al., who showed that the information provided to patients is very important aspect of care, lesser amount of information leading to greater anxiety, also they found that total knowledge score unsatisfied in all patients pre intervention compared to post intervention (Elsay, et al., 2016). Also these results were in the same line with Tahir, et al; (2016) who stated that the mean knowledge score was improved post intervention. In addition to Sanaeinasab, (2013) who revealed that the mean knowledge score was significantly improved after educational intervention. This may discussed as educational intervention help to open mind and allow the participant to discuss with the researchers about any information related to the disease, which led to increase knowledge of participant. In addition to, Werner, (2005) who noted that people who previously received knowledge were more knowledgeable about the disease than those who hadn't any information previously.

As well as, the results of the current study were also consistent with Guo et al., who concluded those answering patients' questions, giving detailed information about the intended procedure, and environmental orientation of patients could reduce patients' anxiety and uncertainties before different surgeries and invasive procedures (Guo, et al., 2012). Also, Harkness et al., reported that patients who received the early education intervention had a reduction in perceived anxiety (Harkness, et al., 2003). In addition to, the study that carried by Garvin et al., that provided information about anxiety reduction with education intervention for patients undergoing cardiac catheterization. All subjects of their study reached the highest level of anxiety at the time

just before and recorded the lowest at the time following the procedure. A lower level of anxiety was experienced by the experimental subjects who received the education intervention when compared with the control subjects who did not receive the education intervention before procedure (Garvin, et al., 2003).

 Finally, providing information is an effective method in reducing a patient's anxiety and worry by informed patients about procedure to alleviate patients' anxiety, facilitate patient agreement, increase satisfaction, aid the patient feel better and better understand the procedure increase patients' outcome, increase the feeling of trust, and prevent complication by reducing uses of sedation and improving tolerance during the procedure (Riddhiputra and Ukarapol, 2006)   and (Hiremath, etal., 2016). Also a nurse should be able to provide competent and effective nursing care, assess patients' anxiety level and responsible for providing necessary and appropriate information to the patients prior to the procedure to lessen the patients' anxiety level (Pehlivan, etal., 2011).

IV. Conclusion and Recommendations:

The overall findings in the present study revealed that the early nursing preparation was successful in building the information and knowledge and decrease anxiety level for the patients undergoing paracentesis procedure that result from performing the procedure. This recommended that: Supervised health teaching program should be carried out for all patients who are undergoing paracentesis procedure about preparatory knowledge that help in preparation of patient and reducing anxiety level.

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