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Evaluation of the Patients` Knowledge undergoing Paracentesis at Aswan University Hospital

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Abstract:
Background: Understanding the level of knowledge among patients undergoing paracentesis is essential for improving patient education, adherence to medical advice. **Aim of the Study:** To assess evaluation of the patients` knowledge undergoing Paracentesis at Aswan University Hospital. **Research Design**: A descriptive research design was adopted to conduct this study. **Setting:** This study was carried out in the medical department at Aswan University Hospitals. **Sample:** The study sample was 30 adult patients who were admitted to the previously mentioned settings and selected by convenience. **Tools**: Two tools were utilized in this study; Tool I: A structured interview questionnaire; Tool II: Patient`s Knowledge assessment sheet. **Results:** Unsatisfactory knowledge is present in over half of the patients under research, and there is a statistically significant positive link between the studied patients' age and total knowledge as well as between total knowledge and occupation. **Conclusion:** Indicates there is a statistically significant positive link between total knowledge and age and occupation, and that over half of the patients in the studied patients have an unsatisfactory level of knowledge. **Recommendation:** Preparing training programs for patients to inform them of the importance of paracentesis.

Keywords: Evaluation, Knowledge, Paracentesis & Patients

Introduction:
Paracentesis is a medical procedure used to remove excess ascitic fluid from the abdominal cavity. It serves both diagnostic and therapeutic purposes—helping to relieve symptoms, improve respiratory function, and analyze fluid for infections or malignancies. Despite its critical role in managing ascites, many liver cirrhosis patients may have limited knowledge about paracentesis, including its indications, benefits, risks, and post-procedure care (**Alfauomy et al., 2020).**

Paracentesis in all patients hospitalized with cirrhosis and ascites, but they do not recommend specific timing of inpatient paracentesis. In a meta-analysis of 7 observational studies of 78,000 patients annually, patients who undergoing paracentesis within 12 to 24 hours after admission had significantly risk subgroup in-hospital mortality also had a significantly lower risk **(Herrle et al., 2024)**

Lack of knowledge can lead to delayed treatment, misconceptions about the procedure, and reluctance to undergo necessary interventions, potentially worsening patient outcomes. To provide proper care and minimize potential complications, it is crucial to be aware of these risks and to treat patients right away utilizing various techniques, such as paracentesis. For both diagnostic and therapeutic reasons, paracentesis is a process used to drain or collect a tiny sample of ascitic fluid. Ascites' etiology and infection or cancer status can be assessed using the fluid **(Elsayed, 2023).**

Assessing the level of knowledge among patients undergoing paracentesis is essential for improving patient education, adherence to medical advice, and overall disease management. By identifying gaps in knowledge, healthcare providers can design targeted educational interventions to empower patients, enhance their understanding, and improve their quality of life. **(Abd Azeem et al., 2023)**

Nurses play a crucial role in assessing a patient's knowledge about paracentesis, a procedure used to remove excess fluid from the abdominal cavity. Before the procedure, nurses evaluate the patient's understanding of its purpose, benefits, risks, and post-procedure care. They assess the patient's awareness of symptoms that may require paracentesis, such as abdominal swelling and discomfort due to ascites. They also ensure the patient is informed about potential complications, such as infection or bleeding, and provide guidance on aftercare, including monitoring for signs of infection and fluid leakage. By performing this assessment, nurses enhance patient safety **(Elsayed et al., 2023)**.

This study aims to assess the patient's knowledge undergoing Paracentesis, highlighting the need for improved patient education to ensure better treatment compliance and health outcomes.

Significance of the study:

Paracentesis is a high-risk procedure in terms of direct morbidity and mortality, especially when performed with unproper technique. However, patients undergoing the procedure especially those with advanced cirrhosis often have high baseline mortality due to their underlying conditions. Paracentesis in all patients hospitalized with cirrhosis and ascites, but they do not recommend specific timing of inpatient paracentesis. In a meta-analysis of 7 observational studies of 78,000 patients annually, patients who undergoing paracentesis within 12 to 24 hours after admission had significantly risk subgroup in-hospital mortality also had a significantly lower risk **(Herrle et al., 2024)**

Around 480 cases of paracentesis occur each year at the medical department at Aswan University Hospital, which was experiencing liver cirrhosis due to various aging demographics. **(Aswan University Hospital Record, 2024).**

Aim of the study

This study aims to assess of the patients` knowledge undergoing paracentesis at Aswan University Hospital

Research Question:

- What is the level of patient's knowledge undergoing paracentesis.

Patients and Methods:

Research Design: A descriptive research design was adopted to conduct this study.

Setting:

This study was carried out in the medical department at Aswan University Hospitals.

Sample:

The sample of this study was comprised of both sex males and females 30 adult patients admitted to the previously mentioned settings. during the time of data collection to assess patients` knowledge undergoing Paracentesis.

Tools of Data Collection:

Two tools were utilized

Tool I: A structured interview questionnaire

The researcher created this two-part following a survey of relevant literature (**Alfauomy et al., 2020).**

Part (1): Demographic data about the patient which includes 7 items such as the patient's age, sex, level of education, occupation, and residence.

Part (2): Patient medical history which was used to assess past and present patient medical history such as paracentesis, hypertension, diabetes and kidney disease.

Tool II: Patient Knowledge Evaluation sheet: It includes questions such as "definition of paracentesis, its indications, contraindications, possible complications and how to prevent them, and nursing management" and was used to gauge patient knowledge **(Elsayed et al., 2023)**

System of scoring: Knowledge will be graded as follows: one point for a right response, and zero points for a wrong response. A patient's level of knowledge is deemed "satisfactory" if their score is 60% or more, and "unsatisfactory" if it is less than 60%.

Operational design:

Assessment and planning phase: It was included reviewing the related literature and theoretical knowledge of various aspect of the study using books, articles and periodical. This part of the study included validity, reliability, ethical consideration, administrative design, a pilot study and filed work.

A pilot study: A pilot study was conducted for 10% of the study patients in order to assess the study's applicability and clarity, identify any necessary modifications, estimate the time needed to complete it. The required changes were made.

Validity: Face content validity was performed to see if the instruments addressed the study's goal. Three professors were performed from the medical surgical nursing department of Aswan University's college of nursing and two from the staff medical department made up the jury of five experts who evaluated the tool for comprehensiveness, correctness, clarity, and relevance.

Reliability: The tools were tested for internal reliability using Cronbach's Alpha test to assure that the tools were reliable before data collection. Cronbach's Alpha test tool one =0.91, tool two = 0.90.

Ethical Considerations:

The investigator was informed that:

- All patients have their rights secured.
- Ethical approval was obtained from ethics committee of Specialized Medical Hospital at Aswan University (**Asw.Uni./919/5/24**). The study was carried out carefully, adhering to ethical guidelines for clinical research, and all patients' rights were maintained. The study's proposal was approved by the ethical committee, faculty of nursing, Aswan University, and written consent was obtained from all patients. study was followed common ethical guidelines in clinical research. The right to decline, withdraw, and participate in the study was underlined, as was the assurance of respondent anonymity and conditionality. Patients were informed by the researcher that all data collected would be used only for research purposes.

Phase II: Implementation phase:

The medical department and the director of Aswan University Hospitals formally granted permission to gather the required data.

Data Collection:

- Started from October 2024 to December 2024.

- The data were collected from the first day of admission morning shift after stabilization of the patient's condition and for two consequent days, every day and every shift then the data were recorded in the developed tools. Data were collected in three phases.
- The researcher introduced herself to the patients, patient's family and nursing staff and explained the purpose of the study.
- During this phase the researcher assess patient's profile data, part (1) in tool I, then patients' medical history using part (2) in tool I.
- Then assessment of patient`s knowledge by using tool II

Statistical design:

Statistical analysis:

- The collected data were coded, analyzed using Statistical Package for Social Sciences (SPSS/ version 25) software, and tabulated. Descriptive statistics as number and percent, mean and standard deviations were used.
- Chi-square was used in order to find relations between variables. Statistical significance was considered at P-value < 0.05.

Results:

Table (1): Percentage Distribution of Demographic Characteristics of the Studied Patients (N=30)

Variables	Studied patients (30)	
	No	%
Age (Years)		
20-less than 30	2	6.7
30-less than 40	13	43.3
More than 40	15	50.0
Sex		
Male	16	53.3
Female	14	46.7
Residence		
Rural	16	53.3
Urban	14	46.7
Marital Status		
Single	8	26.7
Married	20	66.7
Other	2	6.7
Occupation		
House wife	7	23.3
Employee	19	63.3
Retired	4	13.3
Income		
Enough	0.0	0.0
Not enough	30	100.0
Number of Family Member		
3-4 member	13	43.3
More than 4 member	17	56.7

Table (2): Percentage Distribution of the Studied Patients according to Past and Present Medical History (N=30)

Variables	Studied Patients (30)			
	Yes (No %)		No (No %)	
Past Medical History				
liver disease	3	10.0	27	90.0
Hypertension	11	36.7	19	63.3
Diabetes	7	23.3	23	76.7
kidney disease	4	13.3	26	86.7
Others	5	16.7	25	83.3
Present Medical History				
Hypertension	6	20.0	24	80.0
Diabetes	9	30.0	21	70.0
Kidney disease.	9	30.0	21	70.0
Others	6	20.0	24	80.0

Table (3): Percentage Distribution of the Studied Patients According to their Knowledge about Paracentesis (N=30)

Variables	Answer	Study patients (30)	
		N	%
Definition of Paracentesis	Correct	6	20.0
	Incorrect	15	50.0
	don't know	9	30.0
Benefits of Paracentesis	Correct	4	13.3
	Incorrect	16	53.3
	Don't know	10	33.3
The indications of Paracentesis	Correct	9	30.0
	Incorrect	16	53.3
	don't know	5	16.7
Contraindications of Paracentesis	Correct	4	13.3
	Incorrect	19	63.3
	don't know	7	23.3
Possible complications of Paracentesis	Correct	5	16.7
	Incorrect	15	50.0
	don't know	10	33.3
Prevention strategies of Paracentesis	Correct	6	20.0
	Incorrect	16	53.3
	don't know	8	26.7
Nursing preparation before Paracentesis procedure	Correct	7	23.3
	Incorrect	17	56.7
	don't know	6	20.0
Nursing care during Paracentesis procedure	Correct	4	13.3
	Incorrect	18	60.0
	don't know	8	26.7
Nursing care after Paracentesis procedure	Correct	3	10.0
	Incorrect	19	63.3
	don't know	8	26.7
possible complications result from Paracentesis procedure	Correct	6	20.0
	Incorrect	17	56.7
	don't know	7	23.3

Table (4): Distribution between Total Knowledge Levels about Paracentesis for Study Patients (N=30)

Variables	Study patients	
Unsatisfied	**No**	**26**
	%	**86.7**
Satisfied	**No**	**4**
	%	**13.3**

Table (5): Relation Between Socio-Demographic Data and Knowledge Level among Studied Patients (No=30)

Variables	Unsatisfied		Satisfied		X2	p.v
	No	%	No	%		
Age by years						
20 < 30 Yrs.	2	6.7	2	6.7	8.750	**.013***
30 < 40 Yrs.	0	0.0	16	53.3		
More than 40 Yrs	4	13.3	6	20.0		
Sex						
Male	5	16.7	1	3.3	1.292	.372
Female	14	46.7	10	33.3		
Level of Education						
Illiterate	1	3.3	1	3.3	1.383	.709
Primary education	1	3.3	3	10.0		
Secondary education	2	6.7	11	36.7		
University education	2	6.7	9	30.0		
Occupation						
House wife	10	33.3	1	3.3	9.733	**.008***
Employee	2	6.7	21	70.0		
Retired	1	3.3	2	6.7		

Chi square test for qualitative data between the two groups or more
**Significant level at P value < 0.05, **Significant level at P value < 0.01.*

Table (1): Shows that half of studied patients was (50 %) were in the age group ≤ 40 years, and more than half in study group (53.3%) were in the age group (30 – 39 years)., also more than half 53.3 % of the studied patients were males. Also, the table revealed 66.7 % and 63.3 % were married and employee respectively. in addition, total sample have not enough income (100%), Regarding number of family member (56.7 % has more than 4 family members.

Table (2): Illustrates percentage distribution of the studied patients according to past and present medical history. It was noted that the highest percentage of patient in study group has past history of hypertension (36.7 %) in relation to Present patient medical history (30.0 %) have kidney disease.

Table (3): Illustrated that half of studied patients in studied group has incorrect answer regarding definition of Paracentesis with no significant deference p value (.183), also showed that (53.3 % 50.0%) have incorrect answer regarding Benefits of Paracentesis and the indications of Paracentesis. Regarding Contraindications of Paracentesis (63.3% & 46.7%) study group has incorrect answer respectively. in relation to nursing preparation before Paracentesis procedure more than half of patient in study group has incorrect answer (56.7% & 60.0%) respectively, while (23.3%) have correct answer. Regarding possible complications result from Paracentesis procedure (56.7 %) in study group has incorrect answer and (46.7%) have correct answer.

Table (4): Demonstrated that majority of studied patients have Unsatisfied level of knowledge about Paracentesis 86.7%

Table (5): Illustrates that there is statistically significant positive relation between the total knowledge and age among the study patients at P (.013*), also statistically significant positive relation between the total knowledge and Occupation at P (.008*).

Discussion:

Assessing the level of knowledge among patients undergoing paracentesis is essential for improving **patient education, adherence to medical advice, and overall disease management.** By identifying gaps in knowledge, healthcare providers can design targeted educational interventions to empower patients. **(Abd Azeem et al., 2023)**

In term of demographic data of studied patients, results of current study revealed that half of studied patients were in the age group ≤ 40 years., this in line with **Aly, et al (2023)** who reported that mean age in his studied patient was more than fifty years with mean age (51.7± 8.44)

Regarding residence the current results demonstrated that more than half of studied patients live in rural area with no difference, also about two third in the studied patients were male. From the researcher point of view this is related to nature of life in rural area in Egypt as most of men work as farmers in agriculture using channel water that may cause wide verity of co-morbidity as liver disease (viral disease and cirrhosis) which increase rate in men than female. It is in the same line with **Aly, et al (2023)** who reported that more than two third of studied patient were males. Also agree with **(Abdel Azeem, et al, 2023)** who found that about two thirds in the studied patients were males. In addition to **Soliman, et al (2018)** who reported that half of studied patients were farmers which support the researcher's view.

In Relation to marital status, current results demonstrated that majority of studied patients were married, According to the researcher opinion this might be explained by the fact that the majority of people in this age range are married. It agrees with **Atya et al. (2019) & Abdel Azeem, et al, (2023)** who founded that most of studied patients were married.

Regard educational level, more than half studied patients were secondary educated this may be related to preference of people in rural area to have secondary education certificate (Technical education), it was consistent with **Thuy., (2019) & Abdel Azeem, et al, (2023**) who reported that more than one-third of studied patients were secondary education, but in contrast with **Mahmoud et al., (2021)** who founded more than one third were illiterate.

Concerning the income, all current studied patients mention that their income is insufficient, which agree with **Abdel Azeem, et al, (2023)** who mentioned that that majority of studied patients determined that the income is insufficient. Also **Alfauomy, et al. (2020)**, found that more than half of studied patients have insufficient income.

Current study results represented that majority of studied patients had unsatisfied level of knowledge about Paracentesis of nursing guidelines. While demonstrated that majority of studied patient has satisfied level of knowledge

The researcher view related to the adequate and scientific based information introduced to the studied patients through the guidelines helps to enhance their knowledge level about paracentesis procedure. Which agree with study carried by **Soliman, et al** (**2018)** who reported that most of studied sample had poor knowledge related paracentesis pre knowledge preparation,

In addition current results comes in line with **Elsayed, et al (2018)** who illustrated that there was poor knowledge level pre- education and there was a significant improvement at the post education as half

of sample had high knowledge level about liver cirrhosis and paracentesis.

Regarding patient's knowledge about general information related to paracentesis, current results showed significant improvement in patient's knowledge in relation to definition of Paracentesis, benefits of Paracentesis, the indications of Paracentesis and contraindications of Paracentesis, which indicate importance of explaining the complete information about nature and steps of procedure to the patients.

This agree with **Soliman, et al** (**2018)** who showed that there was a highly statistically significant improvement of a mean total knowledge score regarding knowledge about general information related to paracentesis as a procedure, of the studied patients. These results are in line with a study by **Elsayed, et al., (2018**), which found that nurses' knowledge was often limited before the implementation of nursing safety measures to avoid complications for liver cirrhotic patients having paracentesis.

Also in line with **Fahmy**, **et al, (2020)** who highlighted the overall unsatisfactory patients' knowledge about paracentesis procedure at the pre-implementation phase which reflects the lack in their scientific preparation, It was found that about two thirds of the patients had inaccurate knowledge about patient's preparation, indications and contraindications of paracentesis, also the majority of them had incomplete knowledge about (needed equipment's, sites of needle insertion, patient positioning, signs and symptoms of hypovolemia and peritonitis).

In term of early Complications, results of current study illustrated that most common early complications among studied patients were Pain at puncture site, Leakage of ascetic fluid from puncture site, Hypotension after large volume fluid removal and Local bleeding in study group were Re-punctures, Pain at puncture site and Hypotension after large volume fluid removal were the commonest one. That come in line with the study done by **Aly, et al (2023)** who founded that persistence Leakage of ascetic fluid, bleeding and Hypotension and hypovolemia were common complications among studied patients.

Regard late complication, the current results showed that subcutaneous effusion due to ascetic fluid leakage, Perforation of surrounding vessels or viscera and spontaneous hemoperitoneum in studied patients were the commonest late complications. This disagrees with **Sudulaguntaa, et al (2015)** who reported that Late and serious complications associated with paracentesis were hepatic encephalopathy; spontaneous bacterial peritonitis and abdominal hematoma were highest percentage in the studied patient.

Regarding the relation between demographic data and knowledge level among studied patients, current results demonstrated that there was statistically significant positive relation between the total knowledge and age in addition to Occupation. This agrees with **Fahmy, et al (2020)** who founded a significant relation between studied patients knowledge scores and their age's group.

In addition this results similar to **Elsayed et al, (2023)** who showed that there was highly statistically significant relation between age, marital status, years of experience and patients' knowledge. Also agree with **Fahmy, et al (2020)** who reported that there was a significant correlation between the gender of studied patients and their knowledge regarding paracentesis procedure, in which females had the highest percentage of knowledge than males with a p value of (0.009).

Current study results revealed that there is no statistically relation between the knowledge level and all demographic data, these findings disagreed with **Elsayed, et al (2018)** who reported a significant relation between gender and educational level of studied sample with knowledge level.

Conclusion:

According to the current study's findings, half of the patients in the were under 40 years old, the majority of the patients had an unsatisfactory level of knowledge, and there was a statistically significant positive relation between age and occupation and total knowledge.

Recommendations:

- Preparing training programs for patients to inform them of the importance of paracentesis
- Preparing and distributing a brochure for paracentesis among the patients
- For generalization, reapply this study using a more sample size collected from various regions of Egypt.

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