

Nurses' Knowledge and practices regarding the Perioperative Care of Patients with Cholelithiasis undergoing Laparoscopic Cholecystectomy: Guidelines Proposal

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Abstract

Background: cholelithiasis is considered one of the most common digestive tract diseases and constitutes an important health problem in the developed countries. **Objective:** Assess nurses' knowledge regarding the perioperative care of patients with cholelithiasis undergoing laparoscopic cholecystectomy, assess nurses' practices regarding the perioperative care of patients with cholelithiasis undergoing laparoscopic cholecystectomy, and propose perioperative care guidelines for patients with cholelithiasis undergoing laparoscopic cholecystectomy. **Settings:** This study was conducted in two settings namely; Alexandria Main University Hospital, and Medical Research Institute in the inpatient Hepato-biliary and Pancreatic Surgery Department. **Subjects:** Subjects were assigned into two groups as follows; Group one (Jury members): Thirty-seven expert members in nursing and education and service (twenty-five members of the Medical-Surgical Nursing Department, ten surgeons, and two head nurses. Group two (Studied nurses): Consisted of all nurses (n=50) who were available at the time of data collection; twenty from Alexandria Main University Hospital and thirty from Medical Research Institute. **Tools:** Three tools were developed by the researcher based on the review of recent related literature to collect the necessary data for this study; Tool I: Basic Nurses' Perioperative Care Opinionnaire Sheet for Patients with Cholelithiasis Undergoing Laparoscopic Cholecystectomy. Tool II: Nurses' Knowledge of the Perioperative Care of Patients with Cholelithiasis undergoing Laparoscopic Cholecystectomy Structured Interview Schedule. Tool III: Nurses' Perioperative Care practices of Patients with Cholelithiasis Undergoing Laparoscopic Cholecystectomy Observational Checklist. **Results:** The total interventions were fair in more than two-thirds (80%) of the studied nurses, while (20%) had a good performance levels. there was no statistically significant relationship between the nurses' level of intervention and their age, gender, marital status, level of education, years of experience, and the working hospital ($p=0.082, 0.192, 0.343, 0.279, 0.203, \text{ and } 0.470$) respectively. There was no statistically significant relationship between the level of nurses' intervention and their level of knowledge ($p=0.254$). **Conclusion:** The results of the present study concluded that more than half of the studied nurses had a fair total level of knowledge regarding patients undergoing cholecystectomy and the majority of the studied nurses had a fair level of practice regarding patients undergoing cholecystectomy. **Recommendations:** Continuing developing nursing staff competencies in cholelithiasis undergoing laparoscopic cholecystectomy patient care before and after surgery, surgical units should be supplied with a protocol regarding nursing performance for patients undergoing surgical procedures, establishing regular and ongoing educational workshops for continuous updating of their knowledge

of cholelithiasis undergoing laparoscopic cholecystectomy, and organizing periodic educational training sessions about the comprehensive care of cholelithiasis undergoing laparoscopic cholecystectomy and the role of the nurse.

Keywords: Nurses' Knowledge, Nurses' Practices, Perioperative Care, Cholelithiasis, Laparoscopic Cholecystectomy, Nursing Guidelines.

Introduction

Cholelithiasis considers one of the most common digestive tract diseases and constitutes an important health problem in developed countries (Rebholz et al., 2018). Laparoscopic cholecystectomy (LC) is the Gold standard treatment for symptomatic gallstone disease. It is considered one of the most common surgical procedures in the western world (Gutt et al., 2020).

The nursing care for laparoscopic cholecystectomy patients includes physical and broadened psychosocial care. Specific standards are needed to provide efficient pre- and post-operative nursing care to patients undergoing laparoscopic cholecystectomy. LC is a suitable process with which to initiate the systematization of clinical pathways. Hence there is an increased need for the development of clinical pathway for laparoscopic cholecystectomy (Shoqirat et al., 2019).

So, the perioperative specialist laparoscopic nurses have coordinated and assisted in leading the service by developing and delivering different strategies to improve the quality and efficiency of laparoscopic surgery by promoting decisions based on evidence rather than on the opinion of an individual health care professional (Edwards et al., 2019).

The purpose of the proposed nursing guidelines for the care of patients undergoing laparoscopic cholecystectomy is effective in inducing improvements in nurses' related knowledge and practice, which is a better achievement of patients' needs resulting in decreasing the incidence of complications after surgical care (Krammes, 2021).

Aims of the Study:

Assess nurses' knowledge regarding the perioperative care of patients with cholelithiasis undergoing laparoscopic cholecystectomy.

Assess nurses' practices regarding the perioperative care of patients with cholelithiasis undergoing laparoscopic cholecystectomy. Propose perioperative care guidelines for patients with cholelithiasis undergoing laparoscopic cholecystectomy.

Research hypotheses

The present study questions were:

What was the level of nurses' knowledge regarding the perioperative nursing care guidelines for patients with cholelithiasis undergoing laparoscopic cholecystectomy?

What was the level of nurses' practices regarding the perioperative nursing care guidelines for patients with cholelithiasis undergoing laparoscopic cholecystectomy?

What were the proposed perioperative care guidelines for patients with cholelithiasis undergoing laparoscopic cholecystectomy?

Materials and Method

Materials

Design: A descriptive exploratory study investigated the actual knowledge and performance of nurses providing care for patients with cholelithiasis undergoing laparoscopic cholecystectomy.

Settings: This study was conducted in two settings namely; Alexandria Main University Hospital, and Medical Research Institute in the inpatient Hepato-biliary and Pancreatic Surgery Department.

Subjects: Subjects were assigned into two groups as follows; Group one (Jury members): Thirty-seven expert members in nursing and education and service (twenty-five members of the Medical-Surgical

Nursing Department, ten surgeons, and two head nurses.

- Group two (Studied nurses): Consisted of all nurses (n=50) who were available at the time of data collection; twenty from Alexandria Main University Hospital and thirty from Medical Research Institute.

Tools: In order to collect the necessary data for the study three tools were used:

Tool I: Basic Nurses' Perioperative Care Opinionnaire Sheet for Patients with Cholelithiasis Undergoing LC: This tool was developed to elicit the opinions of the expert group who had experience in the field of the study regarding patients with cholelithiasis undergoing laparoscopic cholecystectomy, basic required nurses' perioperative care .

Tool II: Nurses' Knowledge of the Perioperative Care of Patients with Cholelithiasis undergoing LC Structured Interview Schedule: This tool included items such as nurses' socio-demographic characteristics and knowledge regarding the perioperative nursing cares for patients with cholelithiasis undergoing laparoscopic cholecystectomy.

Tool III: Nurses' Perioperative Care practices of Patients with Cholelithiasis Undergoing LC Observational Checklist: It was used to assess nurses' practices regarding perioperative care of patients with cholelithiasis undergoing LC, including the following practice domains: Preoperative preparations, Intraoperative preparations, and post-operative preparations.

Method

The study was accomplished as follows : Approval of the Ethical Research Committee, Faculty of Nursing, Alexandria University was obtained before conducting the study.

Official permission from the Faculty of Nursing, Alexandria University was obtained and directed to the responsible authorities of the study settings to take their

permission to conduct the study after explaining the aims of the study.

Official written permission to conduct the study was obtained from the hospitals' administrative personnel and directors of the nursing services department of the chosen settings after an explanation of the aims of the study.

Written informed consent of the participants was taken and confidentiality will be ensured.

Three tools were used to collect the data:

Reliability: Tool I, tool II and tool III were tested for reliability using Cronbach's Alpha test to measure its internal consistency to evaluate how well the questionnaire consistently measures what they are designed to measure. It was estimated $r = 0.70$.

Validity: All developed tools were tested for content validity by every member of the expert groups to assure their content validity and clarity of items.

Pilot study: A pilot study was carried out on 10% of the study nurses (5 nurses) from the previously mentioned settings who were excluded from the study subjects, to test the clarity and feasibility of the tools (tool II and III), and the necessary modifications were done accordingly.

Preparing the proposed guidelines: Testing applicability and feasibility of the proposed guidelines were performed through nurses' practices assessment throughout the caring of patients undergoing laparoscopic cholecystectomy procedures using tools II and III.

Ethical considerations: Witness informed written consent was obtained from the head nurse of the identified study settings. Written informed consent was obtained from each nurse after the explanation of the purposes of the study. Study participants were informed that they have the right to participate in the study voluntarily and have a right to withdraw at any time during the study and that was considered and

respected. Confidentiality of the collected data for each nurse was assured.

Statistical analysis: Data were fed to the computer and analyzed using IBM SPSS software package version 25.0. (Armonk, NY: IBM Corp) Qualitative data were described using numbers and percentages. The Kolmogorov-Smirnov test was used to verify the normality of distribution. Quantitative data were described using range minimum and maximum, mean, and standard deviation. The significance of the obtained results was judged at the 5% level. The used statistical tests were: ANOVA, Friedman test, Marginal Homogeneity Test, and Paired t-test

Results

Figure 1: Experts' opinions regarding (preoperative, intra-operative, and post-operative) care guidelines for patients with cholelithiasis undergoing laparoscopic cholecystectomy: Regarding pre-operative nursing care; the table shows that all experts agreed (100%) in relation to check the patient's medical record for the type of surgery, reviewing the medical orders, reviewing the initial assessment, patient's medical history, and physical examination, checking the recorded initial assessment, report those that are abnormal, check that the diagnostic testing has been completed, check that results are available, identify and report abnormal results, gather the necessary supplies, bring the bedside stand or over bed table, Perform hand hygiene, put on personal protective equipment (PPE),etc.

According to intra-operative nursing care, the table shows all experts agreed by (100%) in relation to the pre-procedure check in, sign in before induction of anesthesia, time out before skin incision, and sign out before the patient leaves the operating room.

Concerning post-operative nursing care, the table shows all experts agreed (100%) in relation to When patient returns from the

PACU, assessment of the respiratory system, assessment of cardiovascular function, promote optimal neurologic function, promote optimal renal and urinary function and fluid and electrolyte status. Assess intake and output, evaluate for urinary retention, monitor serum electrolyte levels, promote optimal gastrointestinal function and meet nutritional needs, promote optimal wound healing, promote optimal comfort and relief from pain, and promote the optimal meeting of psychosocial needs.

Table 1: reveals that there was no statistically significant relationship between the nurses' knowledge level and their age, marital status, level of education, years of experience, and the working hospital ($p=0.522, 0.233, 0.363, 0.201, 0.104, 0.485$) respectively.

Table 2: shows the relationship between the studied nurses' level of nursing interventions and their socio-demographic characteristics. The table revealed that there was no statistically significant relationship between the nurses' level of interventions and their age, gender, marital status, level of education, years of experience, and the working hospital ($p=0.082, 0.192, 0.343, 0.279, 0.203, \text{ and } 0.470$) respectively.

Table 3: shows the relationship between the studied nurses' level of nursing interventions and their level of knowledge, the table revealed that there was no statistically significant relationship between the nurses' level of interventions and level of knowledge ($p=0.254$ for fair level and $p=0.427$ for good level) respectively.

Discussion:

Regarding experts' opinions regarding preoperative care guidelines for patients with cholelithiasis undergoing laparoscopic cholecystectomy; the table shows that all experts agreed in relation to checking the patient's medical record for the type of surgery, reviewing the medical orders, reviewing the initial assessment, patient's

medical history, and physical examination, check the recorded initial assessment, report those that are abnormal, check that the diagnostic testing has been completed, check that results are available, identify and report abnormal results, gather the necessary supplies, bring the bedside stand or over bed table, perform hand hygiene, Put on personal protective equipment (PPE), ...etc. Being the first research depending on experts' opinions on perioperative nursing care guidelines for patients with cholelithiasis undergoing laparoscopic cholecystectomy, there was no previous research supporting or contradicting my research results.

The study revealed that no statistical relation between nurses' knowledge and their age, marital status, level of education, and years of experience, this agreed with (Saied et al., 2018) who illustrated that there was a significant distinction between the level of knowledge of the studied nurses and their socio-demographic data, but this result contradicted with (Zarchi et al., 2014) who stated there was a positive statistically significant relationship between the level of knowledge and their socio-demographic characteristics. Concerning the relationship between the studied level of intervention for patients undergoing laparoscopic cholecystectomy and their socio-demographic characteristics such as age, gender, marital status, level of education, and years of experience, the result showed that there is no statistically significant relationship between the level of intervention and their socio-demographic characteristic, these study results are consistent with (Lee, 2020), But it contradicted (Eskander et al., 2013) and (Mohamed et al., 2018) who illustrated that there was a positive statistically significant correlation between the level of practices and their socio-demographic characteristics.

Concerning the correlation between the studied nurses' level of intervention for patients undergoing laparoscopic cholecystectomy and level of knowledge, the present study revealed that there was no statistically significant relationship between the nurses' level of knowledge and their level of intervention, this study agreed with (Thabet, 2013). But it disagreed with (Abdelgilil et al., 2020) who found that there was a positive correlation between knowledge scores and practice scores.

Conclusion

The results of the present study concluded that more than half of the studied nurses had a fair total level of knowledge regarding patients undergoing cholecystectomy and the majority of the studied nurses had a fair level of practice regarding patients undergoing cholecystectomy.

Recommendations

Recommendations for nursing staff, supervisors, and head nurses Continuing developing nursing staff competencies in cholelithiasis undergoing laparoscopic cholecystectomy patient care before and after surgery, surgical units should be supplied with a protocol regarding nursing performance for patients undergoing surgical procedures. Establishing regular and ongoing educational workshops for continuous updating of their knowledge of cholelithiasis undergoing laparoscopic cholecystectomy. Organizing periodic educational training sessions about the comprehensive care of cholelithiasis undergoing laparoscopic cholecystectomy and the role of the nurse. Developing and continuing in-service training for nurses to develop their skills in cholelithiasis undergoing laparoscopic cholecystectomy patient care.

Figure (1): Experts' opinions regarding (pre-operative, intra-operative, and postoperative) care guidelines for patients with cholelithiasis undergoing laparoscopic cholecystectomy.

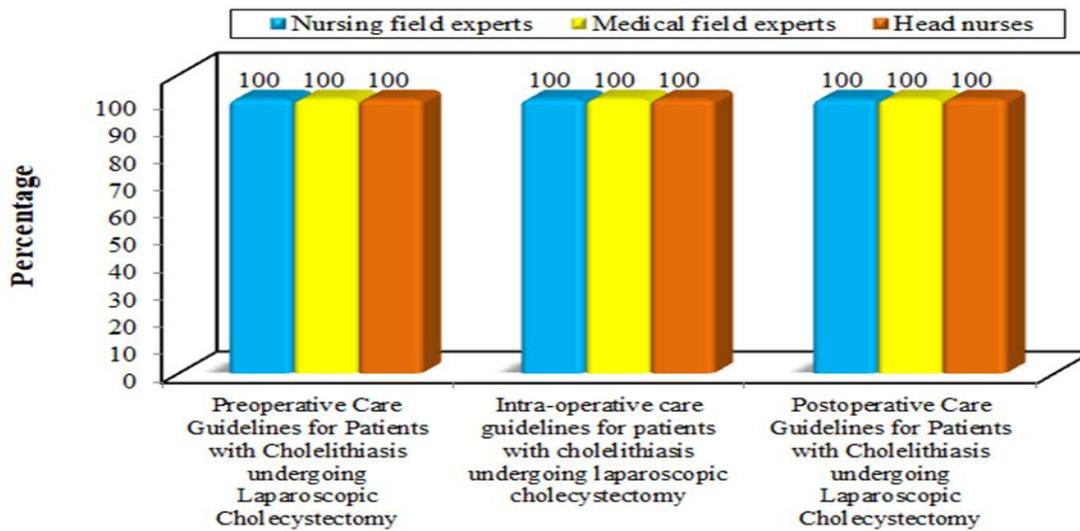


Table (1): The Relationship between the Studied Nurses' Level of Knowledge and their Socio-demographic Characteristics.

Socio-demographic Characteristics	Level of nurses' knowledge				Total n=50		Test of Significance
	Fair (n= 28)		Good (n= 22)		No.	%	
	No.	%	No.	%			
Age in years							
• <30	10	50.0	10	50.0	20	40.0	X²=1.299 P= 0.522
• 30-	12	66.7	6	33.3	18	36.0	
• ≥40	6	50.0	6	50.0	12	24.0	
Gender							
• Male	2	33.3	4	66.7	6	12.0	X²=1.422 P= 0.233
• Female	26	59.1	18	40.9	44	88.0	
Marital status							
• Single	6	50.0	6	50.0	12	24.0	X²=3.193 P= 0.363
• Married	18	60.0	12	40.0	30	60.0	
• Widowed	2	33.3	4	66.7	6	12.0	
• Divorced	2	100.0	0	0.0	2	4.0	
Level of education							
• Diploma	26	54.2	22	45.8	48	96.0	X²=1.637 P= 0.201
• Bachelor degree	2	100.0	0	0.0	2	4.0	
Years of experience							
• <5	12	60.0	8	40.0	20	40.0	X²=6.169 P= 0.104
• 5-	12	66.7	6	33.3	18	36.0	
• 10-	4	50.0	4	50.0	8	16.0	
• ≥15	0	0.0	4	100.0	4	8.0	
Working hospital							
• Alexandria Main University Hospital	10	50.0	10	50.0	20	40.0	X²=0.487 P= 0.485
• Medical Research Institute	18	60.0	12	40.0	30	60.0	

Table (2): The Relationship between the Studied Nurses' Level of Nursing Intervention and their Socio-demographic Characteristics.

Items	Level of nurses' nursing interventions				Total n=50		Test of Significance
	Fair (n=40)		Good (n=10)		No.	%	
	No.	%	No.	%			
Age in years							
· <30	16	40.0	4	40.0	20	40.0	X²=5.001 P= 0.082
· 30- · ≥40	12	30.0	6	60.0	18	36.0	
	12	30.0			12	24.0	
Gender							
· Male	6	60.0			6	12.0	X²=1.705 P= 0.192
· Female	4	40.0	10	100.0	44	88.0	
Marital status							
· Single	8	20.0	4	40.0	12	24.0	X²=3.333 P= 0.343
· Married	24	60.0	6	60.0	30	60.0	
· Widowed	6	15.0			6	12.0	
· Divorced	2	5.0			2	4.0	
Level of education							
· Diploma	39	97.5	9	90.0	48	96.0	X²=1.172 P= 0.279
· Bachelor degree	1	2.5	1	10.0	2	4.0	
Years of experience							
· <5	14	35.0	6	60.0	20	40.0	X²=4.306 P= 0.203
· 5- · 10- · ≥15	14	35.0	4	40.0	18	36.0	
	8	20.5			8	16.0	
	4	10.0			4	8.0	
Working hospital							
· Alexandria Main University Hospital	17	42.5	3	30.0	20	40.0	X²=0.521 P= 0.470
· Medical Research Institute	23	57.5	7	70.0	30	60.0	

X² Chi Square test

* statistically significant at p ≤ 0.0

Table (3): The Relationship between the Studied Nurses' Level of Interventions for Patients with Cholelithiasis undergoing Laparoscopic Cholecystectomy and their Level of Knowledge

Items	Level of nurses' nursing interventions				Total n=50		Test of Significance
	Fair (n= 40)		Good (n= 10)				
	No.	%	No.	%	No.	%	
Level of knowledge							
• Fair	24	60.0	4	40.0	28	56.0	X²=1.298 P= 0.254
• Good	16	40.0	6	60.0	22	44.0	
Level of knowledge							
				Mean score of nurses' interventions			
• Fair	176.27±20.69						t=0.642 P= 0.427
• Good	180.64±17.84						

X²= Chi Square test

t= Student t test

* statistically significant at p ≤ 0.05

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