

THE LEVEL OF NURSES' KNOWLEDGE ABOUT THE COMPLICATIONS OF GALLSTONE DISEASE FOLLOWING LAPAROSCOPIC CHOLECYSTECTOMY

POZIOM WIEDZY PIELĘGNIAREK NA TEMAT POWIKŁAŃ KAMICY PĘCHERZYKA ŻÓŁCIOWEGO PO CHOLECYSTEKTOMII LAPAROSKOPOWEJ

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ABSTRACT

Introduction. Gallbladder disease is a condition involving the accumulation of bile deposits in the gallbladder consisting of chemical compounds normally dissolved in bile and eliminated to the gastrointestinal tract. A high standard of nursing care is a significant factor in patient recovery, especially that laparoscopy, though less invasive than the traditional open surgery, nevertheless carries the risk of complications. Close monitoring of patients and proper performance of nursing procedures contribute to faster recuperation of hospitalized patients.

Aim. The aim of the project was to evaluate the knowledge of nurses regarding proper care for patients who undergo laparoscopic cholecystectomy and complications of the procedure. Work seniority was compared with the rates of correct answers.

Material and methods. The study was conducted using a diagnostic survey, using a questionnaire as the research instrument. The questionnaire consisted of 11 multiple choice questions. Participants were 45 nurses from three departments of the following hospitals: Regional Specialist Hospital in Siedlce and the Witold Orłowski Independent Public Teaching Hospital in Warsaw.

Results. The fewest correct answers were given by the nurses working at the Department of General and Vascular Surgery in Siedlce. The nurses from the Department of Clinical Nutrition and Surgery and the Department of Clinical General and Gastrointestinal Surgery in Warsaw had the same number of correct answers in the questionnaire.

Conclusions. The nurses demonstrated a sufficiently high level of knowledge. A correlation was found between work seniority and the number of correct answers.

KEYWORDS: gallbladder disease, nursing care, laparoscopic cholecystectomy.

STRESZCZENIE

Wstęp. Kamica pęcherzyka żółciowego to schorzenie polegające na odkładaniu się złogów żółciowych, zbudowanych z substancji chemicznych, w pęcherzyku żółciowym, które w warunkach fizjologicznych rozpuszczane są w żółci i dalej usuwane do przewodu pokarmowego. Wysoki poziom opieki pielęgniarskiej jest istotnym elementem w procesie rekonwalescencji pacjenta, zwłaszcza że laparoskopowa chirurgia, będąc mniej inwazyjną metodą od zabiegu z klasycznego otwarcia, niesie ze sobą ryzyko powikłań. Prawidłowa obserwacja pacjenta oraz poprawne wykonywanie zabiegów pielęgniarskich przyczyniają się do szybszego powrotu do zdrowia hospitalizowanych pacjentów.

Cel. Celem pracy była ocena poziomu wiedzy pielęgniarek obejmującej zagadnienia opieki nad pacjentem po cholecystektomii laparoskopowej oraz powikłania wynikające z wykonania tego zabiegu. Porównywano staż pracy z odsetkiem udzielonych prawidłowo odpowiedzi.

Materiał i metody. Badanie przeprowadzono metodą sondażu diagnostycznego, wykorzystując jako narzędzie badawcze kwestionariusz ankiety. Ankieta zawierała 11 pytań zamkniętych jednokrotnego wyboru. W badaniu wzięło udział 45 pielęgniarek z trzech oddziałów następujących szpitali: Wojewódzkiego Szpitala Specjalistycznego w Siedlcach oraz Samodzielnego Publicznego Szpitala Klinicznego im. prof. Witolda Orłowskiego w Warszawie.

Wyniki. Najmniej poprawnych odpowiedzi udzieliły pielęgniarki pracujące na Oddziale Chirurgii Ogólnej i Naczyniowej w Siedlcach. Pielęgniarki z Oddziału Klinicznego Żywności i Chirurgii oraz Oddziału Klinicznej Chirurgii Ogólnej Przewodu Pokarmowego w Warszawie uzyskały taką samą ilość poprawnych odpowiedzi w kwestionariuszu ankiety.

Wnioski. Stan wiedzy pielęgniarek oceniono na zadowalająco wysoki. Wykazano zależność pomiędzy stażem pracy a ilością poprawnie udzielonych odpowiedzi.

SŁOWA KLUCZOWE: kamica pęcherzyka żółciowego, opieka pielęgniarska, cholecystektomia laparoskopowa.

Introduction

Gallstones (cholelithiasis) are the most common biliary disorder. The formation of stones in the biliary duct is

due to excessive secretion of cholesterol into bile, while biliary deposits can form in the gallbladder and in the extrahepatic and intrahepatic bile ducts. Gallstones are

usually composed of bile pigments, cholesterol, and mixed structures, e.g. combining proteins and calcium salts [1, 2].

Worldwide, the prevalence of gallbladder disease is between 10 and 20 per cent, with women being affected three times more often than males. Risk factors include age, multiple pregnancies in women, inappropriate weight-loss diet, diabetes, vagotomy, cirrhosis of the liver, genetics and prolonged parenteral nutrition. The incidence in Poland is 14%, with the disease affecting 18% of women and 8.2% of men.

Conditions that increase cholesterol secretion into bile and thus contribute to the formation of bile deposits are hyperadrenocorticism, diabetes, hypothyroidism and other endocrine disorders. A further risk factor for gallstones is high fat consumption. Gallstones can present as either symptomatic or asymptomatic. 20% of patients with deposits in the gallbladder experience no pain from the condition. The main and characteristic symptoms of the disease include acute pain in the right upper quadrant abdominal pain. In addition to pain, patients may experience nausea, vomiting, tympanites and restricted movement due to intense pain.

Ultrasonography is the diagnostic method of choice in bile duct diseases. Detailed history and physical examination can help determine the type of pain and factors that aggravate the discomfort. The purpose of that course of action is to assess the gallbladder and biliary duct, as well as organs such as the pancreas and liver.

Surgery is the effective therapeutic protocol for gallbladder diseases. Laparoscopic cholecystectomy is the most commonly used minimally invasive procedure. It is currently a much better alternative for patients to the traditional open surgery, primarily because it minimizes pain, cuts hospitalization time and ensures faster resumption of physical activity [6].

Laparoscopic gallbladder removal requires three to four small openings in order to introduce surgical instruments and a camera to the peritoneal cavity. To increase the field of view, pneumoperitoneum is established by the injection of carbon dioxide which raises the abdominal wall to reveal the surgical area. The first trocar, containing the camera, is inserted above or below the umbilicus. Subsequent trocars are used to insert a suction tube, forceps to grasp and manipulate the gallbladder and to prepare and apply clips [8].

Complications of full-blown gallbladder disease may include: acute pancreatitis, acute cholecystitis, and cholangitis. Cholangitis may result in: empyema, hydrocholecystitis, gallbladder gangrene and perforation, as well as biliary cirrhosis, biliary peritonitis and liver abscess.

Laparoscopic cholecystectomy is currently the gold standard in the treatment of gallstones. Despite its advantages, the procedure carries the risk of complications. They mainly include operative complications associated with the establishment of pneumoperitoneum, insertion of trocars into the abdominal cavity, and post-operative complications [5, 11, 12].

Intra-operative haemorrhages are due mainly to the tearing of the liver capsule where it connects with the gallbladder, clipping the main trunk of the cystic artery and the branches of the cystic artery during separation from the gallbladder bed. Another complication of the intra-operative kind is opening of the gallbladder lumen resulting in gallstones dropping out. This makes successful completion of the laparoscopy difficult and may occur when the gallbladder is forcefully extracted from the abdominal cavity or pulled with forceps. Thermal lesions in the form of bile duct wall burns are caused by incompetent manipulation of instruments.

A group at high risk of complications from pneumoperitoneum are patients with respiratory system conditions who exhibit slow heart rate, increased levels of carbon dioxide and hypotension, air embolism. If air embolism occurs, the injection of carbon dioxide must be stopped. In all subjects, carbon dioxide is easily absorbed into the blood; within 4 hours after surgery most of the gas is eliminated via the respiratory system. Filling the abdominal cavity with gas may cause shoulder pain. This happens when carbon dioxide is rapidly injected into the abdominal cavity or its presence results in diaphragm irritation. In subjects with a history of multiple abdominal surgeries, intestinal perforation may occur due to its adhesion to the anterior abdominal wall. Lesions of this kind are usually resolved laparoscopically during the procedure, although the decision is made during surgery and depends on the patient's status and the size of the lesion.

The insertion of trocars may result in abdominal wall haemorrhage that usually resolves spontaneously. Lesions in the abdominal cavity may affect: inferior vena cava, mesenteric blood vessels and the aorta as bleeding sites. Injuries can also occur during electrocoagulation, instrument manipulation, insertion of trocar, or Veress needle. These complications are usually managed laparoscopically; in special cases a classic open surgery of the abdominal cavity is performed [10, 13].

Pain, fever, hypotension and the elevated heart rate are some of the post-operative complications that can be caused by infections and intraabdominal abscesses. The recommended course of action is ultrasound and CT, followed by the aspiration of pus. Infections of wounds in the navel area are unproblematic and usually

treated topically while observing recommended hygiene and wound dressing procedures [9].

Laparoscopic cholecystectomy may result in bile leakage and formation of a bile reservoir. This causes pain and results from bile leaking from the site in the liver; in extreme cases bile leakage may be due to bile duct injuries. Treatment involves drainage guided by ultrasound, CT or exploration of the abdominal cavity by laparoscopy or open surgery. A biliary leakage stopped within a few days can be managed with conservative treatment [3, 4, 7].

The most dangerous iatrogenic complication is the inter-operative bile duct stricture or complete sectioning, which is an indication for bile duct reconstructive surgery. Such a serious bile duct trauma requires a diagnostic or therapeutic ERCP procedure with cannulation and stenting of bile ducts. In cases where endoscopic bile duct repair is impossible, surgery is recommended.

Aim

1. To analyse the knowledge of nurses at the Department of General and Vascular Surgery in Siedlce, Department of Clinical Nutrition and Surgery in Warsaw and Department of General and Gastrointestinal Surgery regarding complications of laparoscopic cholecystectomy due to gallbladder disease.
2. To demonstrate correlations between work seniority and actual level of knowledge regarding complications of laparoscopic cholecystectomy due to gallbladder disease.

Material and methods

A diagnostic survey was used to evaluate nurses employed at Wojewódzki Szpital Specjalistyczny (Regional Specialist Hospital) in Siedlce and Samodzielny Publiczny Szpital Kliniczny im. Prof. Witolda Orłowskiego (Prof. Witold Orłowski Independent Public Teaching Hospital) in Warsaw. Participants were 45 registered nurses, 15 from the Department of General and Vascular Surgery in Siedlce, 15 from the General and Gastrointestinal Surgery Department in Warsaw and 15 from the Department of Clinical Nutrition and Surgery in Warsaw.

The questionnaire consisted of 11 multiple choice items. The items included questions about symptoms of complications, types of complications following laparoscopic cholecystectomy, prevention of complications and their management.

Results

In the first part of the questionnaire, the most challenging for the participants were the questions about the complications associated with air embolism during

laparoscopic cholecystectomy, i.e. questions 4 and 5. Question four asked what type of the complication intestinal puncture during laparoscopy constituted. Only 16 out of 45 respondents answered correctly, with no correct answers provided by nurses employed at the Regional Hospital in Siedlce. 11 nurses working at the Department of Clinical Nutrition and Surgery in Warsaw and 5 nurses from the Department of General and Gastrointestinal Surgery in Warsaw answered the question correctly. Only 9 nurses gave the right answer to Question 5 related to air embolism during laparoscopic cholecystectomy.

The rates of correct answers were related to the place of employment. The fewest correct answers were given by the nurses working at the Department of General and Vascular Surgery in Siedlce. The nurses from the Department of Clinical Nutrition and Surgery and the Department of General and Gastrointestinal Surgery in Warsaw had the same number of correct answers in the questionnaire.

The analysis of the effects of seniority on the number of correct answers revealed a direct proportionality between the number of correct answers and the number of participants with a given number of years of work experience. Nurses with 10 or more years of service answered significantly more questions correctly than nurses working for less than a year, who gave the most incorrect answers.

With respect to self-assessment by the medical staff, as many as 26 nurses evaluated their knowledge as sufficient for taking care of patients who undergo laparoscopic cholecystectomy. In addition, 35 surveyed nurses admitted they would be willing to undergo additional training on post-laparoscopic cholecystectomy complications. Three out of four nurses with less than 1-year experience declared willingness to attend training, even though only one of them considered her knowledge to be insufficient. The greatest number of nurses willing to attend training was among those with over 10 years of seniority. Nurses with 1–5 and 5–10 years' experience were relatively less interested in training.

Discussion

Cholecystectomy is a relatively common surgical procedure. Today, the laparoscopic procedure is performed more often than classic open surgery. Despite significant progress in medical science and treatment methods, laparoscopic cholecystectomy still carries the risks of procedure-related complications. Efficient cooperation among the team of diagnosticians and modern methods have reduced hospitalization time and improved patients' general status post-surgery. Overall, the complications are less severe than those resulting from open surgery. Thus, the laparoscopic procedure has significantly more benefits to patients.

Nursing care extended to patients undergoing laparoscopic cholecystectomy is crucially important considering that nurses spend the most time with patients during working hours. They should therefore be adequately trained in recognizing the initial symptoms indicative of post-operative complications. Laparoscopic gallbladder removal is a rapidly developing area of medicine; nursing knowledge is invaluable in working with patients and guarantees their safety during hospitalization.

The present survey helped establish the current knowledge and patient care skills following laparoscopic cholecystectomy. It also demonstrated the level of competence in taking care of patients diagnosed with post-operative complications.

Conclusions

1. The data on the number of nurses interested in expanding their competences and knowledge on the care for patients following laparoscopic cholecystectomy are encouraging.
2. A crucial aspect of nurses' profession is education in patient care combined with work experience, which is why it is so important to hold scientific meetings and provide training in new skills for nurses.
3. The level of knowledge of nurses at the Regional Specialist Hospital in Siedlce and the Witold Orłowski Independent Public Teaching Hospital in Warsaw is assessed as high.

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