**Original Article**

# Are Surgical Nurses Aware of Up-to-Date Perioperative Care Practices?

**Kenan Gumus, PhD**
**Department of Surgical Nursing, Faculty of Health Sciences, Amasya University, Amasya, Turkey**

**Gokcen Akbuga, PhD**
**Department of Surgical Nursing, Faculty of Health Sciences, Bozok University, Yozgat, Turkey**

**Aybike Bahceli, MSc**
**Department of Surgical Nursing, Faculty of Health Sciences, Bozok University, Yozgat, Turkey**

**Semra Erdagi Oral, PhD**
**Department of Surgical Nursing, Faculty of Health Sciences, Kafkas University, Kars, Turkey**

**Correspondence:** Asst. Prof. Kenan Gumus, Faculty of Health Sciences, Amasya University, 05100 Amasya, Turkey e-mail: kenan.gumus@amasya.edu.tr

**Abstract**

**Purpose:** The aim of this study was to determine surgical nurses' views on up-to-date information and practices developed for patient care during the surgical process.
**Method:** 133 nurses were included in this descriptive study. The participants were asked 7 questions regarding socio-demographic characteristics and 16 questions regarding up-to-date care practices within the frame of the ERAS (Enhanced Recovery After Surgery) protocols. The data were assessed in the computer environment using "number, percentage, mean and standard deviation".
**Results:** It was determined that 14.2% of the nurses were working in the orthopedics service, their average duration of working was 6.49±4.72 years, 56.4% followed developments about surgical patient care, and 41.3% followed developments through their colleagues. Among nurses, 58.6% stated that it was wrong to start oral fluid feeding in the early postoperative period, 88% stressed the necessity of waiting bowel sounds and/or flatus to start feeding and 43.6% indicated that there was no correlation between surgical stress and infection development. In addition, it was determined that the nurses did not have adequate up-to-date information about mechanical intestinal cleansing, preoperative fasting duration and oral fluid carbohydrate loading before the surgical procedure.
**Conclusion:** Surgical nurses do not have adequate knowledge about up-to-date care practices.

**Keywords**: ERAS, surgical nurse, perioperative care

## Introduction

Although advances in surgical patient care have decreased in mortality rates, prolonged length of hospital stay and postoperative morbidity are still considered as a problem for patients to undergo a surgery under elective conditions. Thus, the ERAS (Enhanced Recovery after Surgery) protocol has been developed as an approach to improve perioperative care in surgical clinics. The ERAS protocol is a process that contains evidence-based suggestions in the perioperative period in order to accelerate patient's postoperative recovery period and requires a multidisciplinary approach (surgeons, anesthetists, nurses, and physiotherapists) (Bayar et al, 2013). In this protocol, updates with a higher evidence level have been made on subjects such as preoperative and postoperative fasting durations, mechanical intestinal cleansing, early postoperative feeding, normothermia, and the use of catheters for surgical patients (Akın 2010; Donohoe et al, 2011). In the past ten years, many studies have revealed that traditional approach of surgical care such as preoperative intestinal preparation, the use of nasogastric tube, drain application, extended bed rest, and special diet is not necessary and shortening the preoperative fasting duration and giving oral fluid carbohydrate may

enhance recovery (Kehlet & Dahl 2003; Jakobsen et al, 2006; Kehlet & Wilmore 2010, Cakabay et al, 2011).

It is stated that applying the up-to-date care practices specified in the ERAS protocol for surgical patient's care will accelerate patient's return to her/his basic performance and vital functions (Ersoy & Gundogdu 2007). In many stages of the perioperative process, nurses play an important role within the team. Thus, the ERAS protocol is one of the up-to-date evidence-based approaches to which surgical nurses have to adapt. As long as nurses follow up-to-date approaches in the surgical care process, patient care and treatment will be provided at the optimum level (Demirhan & Pınar 2014).

The purpose of this study was to determine the knowledge levels of nurses working in surgical clinics regarding up-to-date information and practices about perioperative patient care, within the frame of the ERAS protocol.

## Materials and Methods

**Type and Setting of the Study:** This descriptive study included nurses working in the surgical clinics of two different university hospitals in 2019 year.

**Population and Sample Selection:** The population of the study consisted of 155 nurses working in surgical clinics of the aforementioned hospitals. 133 nurses who were voluntary to participate in the study, were included in the sample without using the sampling method.

**Method and Data Collection Tools:** The data were collected using a survey form of 23 questions which was developed by the researchers in accordance with the related literature (Donohoe et al. 2011; Cakabay et al, 2011; Aksel et al, 2011; Gebremedhn & Nagaratnam 2014; Akın 2010). 7 questions in the survey examine individual and professional characteristics of the participants. The form with 16 questions developed based on the ERAS protocol, aims to examine nurses' views on up-to-date practices in care. Questions asked for examining up-to-date information in surgical care are in the format of multiple-choice question with 3 options. Each question includes options "true, false or I have no idea". Before the study, each nurse who agreed to participate in the study was given information about the purpose and how to fill up the forms. The personal information form and question form were filled by nurses who were included in the study. In the data collection stage, an unbusied time period was determined for nurses and the forms were applied in that time period. As they were working in shifts, their services and units were visited repetitively. Data collection process lasted for averagely 10 mn. for each participant. Before the study, an institutional permission was obtained from the institution where the study would be conducted. The participants were given information about the content of the study and voluntary individuals were included in the study.

**Data Assessment:** The data were assessed in the computer environment using a statistical package software. The data were showed using descriptive statistical methods such as number, percentage distribution, mean, and standard deviation.

## Results

Table 1 shows the distribution of the descriptive characteristics of the nurses. It was determined that 82.0% of nurses were female, 53.5% had a bachelor's degree, and their mean age was 27.79±5.31 years. It was found that 14.2% of the nurses worked in the orthopedics service and their average duration of working was 6.49±4.72. It was determined that 56.4% of the nurses followed developments about surgical patient care and 41.3% followed developments through their colleagues.

Table 2 shows the distribution of responses of nurses to precursors in the ERAS protocol. Among nurses, 69.9% stated that it was necessary to provide discharge training as patients would leave the clinic, 88.7% stressed the necessity of mechanical intestinal cleansing before every surgery and 66.2% indicated that keeping patients hungry for at least 12 hours in the preoperative period might reduce postoperative complications.

On the other hand, 45.9% of the nurses considered that oral carbohydrate loading was not necessary to provide metabolic postprandial state. 58.6% of the nurses stated that it was wrong to start oral feeding with liquid food in the postoperative first hours, 88.0% stressed the necessity of waiting for bowel sounds and/or flatus in order to start oral feeding, 43.6% considered that there was no correlation between patient's surgical stress and infection development, and 51.9% stated that hypothermia reduced the risk of stress and organ dysfunction related to the surgical procedure.

**Table 1. The Distribution of Results Regarding the Descriptive Characteristics of the Nurses (n:133)**

| **Characteristics** | **n** | **%** |
|---|---|---|
| **Gender** | | |
| Female | 109 | 82.0 |
| Male | 24 | 18.0 |
| **Age Average (year)** | 27.79±5.31 | |
| **Educational Background** | | |
| High school | 38 | 28.6 |
| Associate degree | 24 | 18.0 |
| Bachelor degree | 71 | 53.4 |
| **Service** | | |
| Surgical intensive care | 17 | 12.7 |
| Orthopedics | 19 | 14.2 |
| General surgery | 16 | 12.0 |
| Pediatric surgery | 15 | 11.2 |
| Operating room | 18 | 13.5 |
| Gynecology | 17 | 12.7 |
| Other * | 31 | 23.3 |
| **Average Duration of Working** | 6.49±4.72 | |
| **Status of Following Professional Developments Regarding Surgical Patient Care** | | |
| Yes | 75 | 56.4 |
| No | 58 | 43.6 |
| **Person/Place Providing Up-to-Date Developments**** | | |
| Nurse | 55 | 41.3 |
| Scientific article | 24 | 18.0 |
| Physician | 9 | 6.76 |

*****The option “other” includes ear-nose-throat, eye, thoracic surgery and urology precursors * *Multiple answers were given.

**Table 2. The Distribution of Responses of the Nurses to Precursors in the ERAS Protocol (n:133)**

| Questions | True | | False | | I have no idea | |
|---|---|---|---|---|---|---|
| | n | % | n | % | n | % |
| The present perioperative patient care practices may affect the postop recovery process negatively. | 62 | 46.6 | 44 | 33.1 | 22 | 20.3 |
| Discharge training of patients is provided as they leave the clinic. | 93 | 69.9 | 35 | 26.3 | 5 | 3.8 |
| Mechanical intestinal cleansing is required before every surgery. | 118 | 88.7 | 11 | 8.3 | 4 | 3.0 |
| Keeping patients hungry for at least 12 hours in the preoperative period may reduce postoperative complications. | 88 | 66.2 | 39 | 29.3 | 6 | 4.5 |
| Training provided to patients in the preoperative period may reduce the amount and duration of analgesics needed by them in the postoperative period. | 105 | 78.9 | 15 | 11.3 | 13 | 9.8 |
| Short-term application of volatile anesthetics during the surgery shortens the duration of recovery in the postoperative period. | 64 | 48.1 | 32 | 24.1 | 37 | 27.8 |
| In order to provide metabolic postprandial state in patients who are about to undergo a surgery, they should be given 400 ml liquid food rich in carbohydrate, 2-3 hours before the surgery. | 42 | 31.6 | 61 | 45.9 | 30 | 22.6 |
| Oral feeding with liquid food can be started in first hours in the postoperative period. | 52 | 39.1 | 78 | 58.6 | 3 | 2.3 |
| Unless there is a situation obstructing the urine flow in the postoperative period, urinary catheters should be removed in the earliest period. | 121 | 91.0 | 10 | 7.5 | 2 | 1.5 |
| There is no need for routine nasogastric tube applications in elective surgical operations. | 59 | 44.4 | 35 | 26.3 | 39 | 29.3 |
| In order to start oral feeding, bowel sounds and/or flatus should be waited. | 117 | 88.0 | 14 | 10.5 | 2 | 1.5 |
| Unless there is an immobilization indication, early mobilization of patients in the room reduces postoperative complications as soon as the anesthesia wears off. | 95 | 71.4 | 31 | 23.3 | 7 | 5.3 |
| There may be a correlation between surgical stress and infection development of patients. | 56 | 42.1 | 58 | 43.6 | 19 | 14.3 |
| Early pain control in the postoperative period will not have a positive effect on patients' early mobilization and discharge. | 29 | 21.8 | 76 | 57.1 | 28 | 21.1 |
| Patients discharged following the surgery should be called every 24-48 hours and their condition should be learned. | 51 | 38.3 | 49 | 36.8 | 33 | 24.8 |
| Decreasing the normal body temperature (hypothermia) in the surgical process may reduce the risk of stress and organ dysfunction related to the surgical procedure. | 69 | 51.9 | 23 | 17.3 | 41 | 30.8 |

## Discussion

The ERAS protocol is a guideline on interventions that include dependent and independent roles of surgical nurses with a multidisciplinary approach. Surgical nurses are the only occupational group, which is responsible for patient care for 24 hours and never leaves patients throughout the surgical process. It has been determined that nurses providing care with the ERAS protocol have less workload and they are able to use the time allocated for patients more effectively (Cilingir & Candas 2017). Thus, it is crucial for surgical nurses to know care practices with a higher evidence level, which are specified in the ERAS protocol.

In this study, 88.7% of the nurses stated the necessity of mechanical intestinal cleansing before every surgery. Based on the ERAS protocol, routine intestinal cleansing is not recommended. It has been determined that mechanical intestinal cleansing causes stress, dehydration, electrolyte imbalance, and ileus in patients and delays the normalization process of intestinal functions (Solak & Ozbayir 2016). In the literature, it is indicated that mechanical intestinal cleansing is not necessary even before elective colon surgery and it increases risk of postoperative ileus (Gustafsson et al, 2013) In a systemic review including a randomized controlled study, it was determined that there was no difference between the groups with and without mechanical intestinal cleansing, in terms of anastomotic leakage, mortality rate, and wound infection (Guenaga et al, 2003)

Nurses are required to keep patients hungry appropriately in the preoperative process (9) (Demirhan & Pınar 2014) . In this study, 66.2% of the nurses stated that preoperative fasting duration had to be at least 12 hours and 45.9% indicated that it was wrong to get oral carbohydrate loading in order to provide metabolic postprandial state. In the study by Dolgun et al., mean preoperative fasting duration of the patients was found to be averagely 13.53 hours, whereas average duration of fluid restriction was 12.21 hours (Dolgun et al, 2011). Extended perioperative fasting causes some metabolic changes in the organism along with the catabolic process caused by surgical trauma. The catabolic process brings along imbalances in insulin resistance, fluid electrolyte and blood glucose levels and it also increases gastric fluid volume and acidity. Therefore, patients may experience nausea-vomiting, increased sense of fasting and thirst, fatigue, weakness, and delayed recovery (Aksoy et al, 2012; Yildiz 2006; Aygin 2012). According to the ERAS protocol, it is recommended to keep preoperative fasting duration shorter and provide patients with oral fluid carbohydrate loading in the preoperative period. The protocol allows patients to receive solid food until 6 hours before the surgery and fluid food until two hours before the surgery. In addition, it is recommended to give 800 ml liquid food rich in carbohydrate to patients until the midnight before the surgery and 400 ml liquid food 2-3 hours before the surgery. In routine practices, on the other hand, it is thought that early feeding will cause ileus, anastomotic leakage and aspiration pneumonia. In the study by Yagci et al., they indicated that liquid diet given two hours before did not increase gastric fluid volume and acidity and it had no risk of aspiration (Yagci et al, 2008). In addition, it was determined that oral carbohydrate loading reduced the stress response caused by fasting and surgical trauma, suppressed the catabolic process, reduced insulin resistance, minimized fluctuations in the glucose level in the postoperative period, and decreased feel of fasting and thirst, nausea-vomiting, flatus-stool duration and hospitalization (Ozdemir et al, 2011; Awad et al, 2013).

Among nurses who participated in the study, 58.6% stated that it was wrong to start oral feeding with fluid foods in the postoperative first hours and 88.0% stated the necessity of waiting bowel sounds and/or flatus to start oral feeding. Similarly, traditional care practices include limited oral intake which causes weight and muscle loss. According to the ERAS protocol, oral fluid intake should be started as early as possible after the surgery and patients should be encouraged to consume fluids (Terzioglu et al, 2013; Carter & Philip 2011). The literature, in contradistinction to the traditional belief, includes many studies indicating that oral feeding does not increase complications in the early postoperative period. It is indicated that early oral feeding after the gastrointestinal surgery eases postoperative repair without increasing the incidence of fistula formation (Berberat et al, 2007). It is stressed that starting early oral feeding in the postoperative period reduces mortality rate and postoperative complications and shortens hospitalization (Lewis et al, 2009). In their study, Braga et al., determined that patients receiving the ERAS

protocol were able to proceed to oral feeding more quickly and tolerate feeding better (Braga et al, 2014).

It was found that 51.9% of the nurses stated that hypothermia reduced the risk of stress and organ dysfunction related to the surgical procedure. Undesired hypothermia, which occurs during surgery, stimulates the metabolic endocrine response, increases bleeding and oxygen consumption by impairing coagulation balance, and causes shivering and pain. Thus, up-to-date evidences focus on studies aiming to prevent hypothermia in the perioperative period (Cimke et al, 2018) In the literature, it is indicated that body temperature should be kept above 36 degrees with an appropriate heating device and heated intravenous fluids during the surgery (Solak & Ozbayir 2016). In addition to heated intravenous fluids, utilization of external heaters during the surgery enables the maintenance of normothermia (Dagıstanlı et al, 2018).

**Conclusion and Recommendation:** Majority of surgical nurses who participated in the study, thought that traditional perioperative care practices may affect postoperative recovery negatively. However, it is seen that nurses lack up-to-date information about preoperative fasting durations, mechanical intestinal cleansing, early-period fluid feeding and oral carbohydrate loading, which are focused on in the ERAS protocol. In addition, nurses mainly thought that it is necessary to wait for bowel sounds and/or flatus in order to start oral feeding in the early postoperative period, there was no correlation between surgical stress experienced by patients and infection development, and hypothermia may reduce the risk of stress and organ dysfunction related to the surgical procedure.

As seen in results of the study, surgical nurses approached to some of the practices specified in the ERAS protocol positively and to some, negatively. In order to change that approach positively and reflect it in patient care, it is required to inform nurses about up-to-date surgical care practices and share evidence-based results and care outcomes acquired as a result of studies.

In addition, it is believed to be necessary to spread the application of the ERAS protocols at the patient care level and to conduct more experimental studies on this matter.

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