

Are We Traditionalist or Innovative In Preoperative Period According To the Enhanced Recovery After Surgery?

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Abstract

Aim: The purpose of the study was to determine the implementation status of preoperative patient preparation according to the ERAS protocols.

Methods: This descriptive study was conducted in university hospital surgical clinics in two different cities in the Eastern Black Sea region. The sample of the study consisted of 17 surgical clinics. The data were collected using a questionnaire consisting of 50 questions developed by the researchers through face-to-face interviews with the charge nurses of the clinics. The data were evaluated with numbers and percentages.

Results: In pre-operative patient care, common clinical practices were mostly found in nutrition and pre-operative training. It was determined that the patients were not fed with solid or liquid food after 12 am in the 16 out of 17 clinics and each patient was provided training in the 15 clinics. In the 13 clinics, antibiotics were changed according to the operation time, and they were administered the day before the operation in the 8 clinics. It was also reported that preventive measures were taken by evaluating the patients in terms of Deep Vein Thrombosis (DVT), and 12 mechanical bowel cleansing were performed in the 11 clinics. It was observed that pre-medication application varied according to the physician in the 11 clinics, the skin preparation was done in the operating rooms in the 6 clinics, and the razor was used in the 13 clinics.

Conclusion: In surgical clinics, while pre-operative informative is being innovatively provided, traditional methods continue to be used in antibiotic administration, thromboembolism prophylaxis, nutrition and fluid loading. **Implications for practice:** The results of this study have provided us with information on the implementation status of the ERAS protocols prior to surgery. The information obtained can be used as a guideline to investigate the reasons for not applying ERAS protocols.

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Keywords: ERAS, Fast tract, Preoperative nursing, Preoperative.

Introduction

Enhanced Recovery after Surgery (ERAS) are evidence-based interventions to standardize preoperative patient care [1]. Compared with traditional methods, post-surgical healing protocols are the

basis for the change in preoperative care [2-4]. Surgical stress reduction, the preservation of physiological function in preoperative patient care, and an increase in postoperative mobility are the main ERAS goals. According to the results obtained from the research and randomize studies, faster recovery and shorter hospital stay as well as reduction in morbidity rates have been reported thanks

to these strategies [5-7]. Originating in Denmark, ERAS was primarily used in colorectal surgery, and today it has been adapted to all elective surgeries, especially in abdominal surgery [8,9]. Since the adaptation and implementation process of the developed strategies in institutions have not yet been completed, a sufficient number of studies cannot be reached in this field.

Developed as an approach to improve postoperative care in surgical clinics, Fast Track Surgery (FTS) has been successfully used [10,11]. The above-mentioned strategies include abbreviated preoperative fasting, preoperative carbohydrate loading, postoperative analgesics, postoperative early mobilization, and early enteral feeding [12].

The results of the studies conducted for the last 10 years have shown that many traditional surgical care practices such as preoperative bowel preparation, nasogastric tube use, surgical drainage, forced bed rest, and the graduated diet are not necessary and even have negative consequences for the patient [13-15]. Starting with the detailed information provided to the patient, ERAS protocol includes 21 separate items covering the whole preoperative period such as avoiding mechanical bowel cleansing in the preoperative period, drainage and nasogastric tubes in the operation, and early onset of oral feeding [16]. It has recommendations about preoperative fasting time, informing the patients, antimicrobial prophylaxis, thromboembolic prophylaxis, preoperative bowel cleansing, pre-anesthesia medication and pre-operative skin preparation [17].

Preoperative fasting time

Preoperative fasting leads to many problems after surgery due to stopping solid and fluid intake starting from midnight before surgery. Clear fluid intake up to two hours before surgery, and solid intake up to six hours appears to cause no problem after surgery [17,18]. In addition, this application was reported to provide increased post-operative well-being, decreased insulin resistance, and shorter hospital stay [19].

Informing the patient before surgery

Informing the patient before surgery is important to prevent the problems that the patient will experience after the operation. For this reason, it is recommended that all problems the patient may experience be explained to him/her both verbally and in written [17,18].

Antimicrobial prophylaxis

Antibiotic prophylaxis is used to reduce post-operative wound infections. A single dose of the antibiotics affecting both anaerobic and aerobic organisms should be applied before the surgical incision (max: 30 min). The use of oral antibiotics is reported to be inappropriate in the ERAS protocol [17,18].

Thromboembolic prophylaxis

Medical thromboprophylaxis is recommended to be administered at an appropriate dose to the patient with the indications especially in the preoperative period. In addition, all patients who will

undergo major surgeries need to use thromboembolic-resistant compression socks [17,18].

Preoperative bowel cleansing

There are studies reporting that oral mechanical bowel cleansing has been associated with side effects that may lead to fluid-electrolyte problems. It is advised not to be performed during preoperative preparation as it causes dehydration [17,18].

Pre-anesthesia medication

It is used to reduce the stress response experienced by the patient before surgery. It is thought that taking the stress under control will be effective in preventing the problems that may occur after the operation. For this reason, it is suggested that sedation can be applied to the patients up to 12 hours before surgery [17,18].

Preoperative skin cleansing

It is performed to reduce surgical site infections. However, hair removal does not seem to be an effective measure to prevent infections. The ERAS protocol recommends no hair removal, but razors or blades should not be used if it is done [17,18]. No studies have been found in the literature regarding the time of the hair removal affecting the consequences.

The strategies designed to accelerate postoperative healing are effective in reducing the length of stay in the hospital and postoperative problems. However, we need time to distract from traditional methods fully and adapt to the protocol [20]. It may be useful to identify the compliance status of the adaptation and the obstacles in front of the application through case studies. The aim of this study was to determine the implementation status of preoperative patient preparation designed according to the enhanced recovery after surgery (ERAS) protocol in surgical clinics.

Materials and Methods

Data collection

This descriptive research was conducted in all the surgical clinics of university hospitals in two different cities in the Eastern Black Sea Region. The data were collected from 17 clinics providing surgical treatment in the hospitals. There may be different ways of determining the practices performed in clinics. Because no application could be done without informing the head person, the charge nurses of the clinic were interviewed in the identification of the situation in the clinic.

In the interviews, a questionnaire including 50 questions developed by the researchers was used and the interviews were conducted by the 1st and 2nd researchers. The questionnaire consists of 46 questions about preoperative nutrition, preoperative training, antibiotic prophylaxis, thromboprophylaxis, preoperative bowel preparation, premedication and skin preparation applications. Expert opinion for the questionnaire was obtained from five surgical nurses, including two faculty members and three Ph.D. students. In the direction of their suggestions, the questionnaire was reviewed and the data were collected.

Ethical considerations

For the research, ethical consent was obtained from the ethics committee of the region, institutional permission was received from the university hospitals where the study was to be conducted and verbal permission was obtained from the participants.

Statistical analysis

The data were analyzed using the SPSS (Statistical Package for Social Sciences) 20.0 package program. Percentages were used in the evaluation of the data.

Results

The mean of preoperative hospital stay was 1.17 ± 1.4 days (min: 0-max: 5). It was found that the use of insulin continued before and after the surgery in the three -quarters of the patients. Half of the surgical clinics were found to have stopped cigarette smoking at the time of diagnosis, while others did it after the admission to the clinics.

Table 1 shows the implementation status of preoperative ERAS protocols in the clinics. It was determined that common clinical practices were mostly found in pre-operative situations and nutrition in the patient preparation in the clinics. Mechanical bowel cleansing, skin preparation and premedication appeared to be performed differently in the clinics.

In 16 of the clinics, it was determined that the intake of solid and liquid food was stopped after 12 am. It was found that the period of fasting was changed only in 3 of the clinics according to the age of the patient and it was changed according to the presence of diabetes mellitus only in 2 of the clinics. Most of the clinics were found to provide training to each patient when the patient is hospitalized.

In 13 of the clinics the onset time of antibiotic was found to have changed according to the surgical procedure. It was reported that the onset time of broad spectrum antibiotics was one day before the surgery in the 8 clinics, in the morning of surgery in the 3 clinics, with premedication in the 3 clinics and 30 minutes before surgery in the 1 clinic. As for the type of administration, it was determined that oral antibiotics, parenteral antibiotics and both of them were preferred by the 7, 8 and 2 of the clinics respectively. The 12 clinics evaluated the patients in terms of DVT and took measures. Compression socks were used in the 7 clinics and they were used only in major surgeries in the 10 clinics.

In the 11 clinics, mechanical bowel cleansing was routinely performed and at the physician's request equally. In the 11 clinics, pre-anesthesia medication was found to be variable depending on the physician's request. In the 10 clinics, it was determined that the hair removal depended on the procedure and it was done with a razor blade in the 13 clinics. The skin preparation was performed in the operating room and the day before the operation in the 6 and 5 clinics respectively.

	N	%
Preoperative Fasting		
The patient who will receive general anesthesia is not given anything solid or liquid after 12 am before surgery.	16	94.1
The patient is not given solid food after 12am but s/he is supported with liquid solutions.	7	41.2
The fasting time depends on the type of anesthesia to be applied to the patient.	7	41.2
The fasting time depends on the type of surgery to be performed on the patient.	7	41.2
Informing the patient before surgery		
Training is absolutely provided to every patient.	15	88.2
Training is provided when the patient is hospitalized in the clinic.	15	88.2
The time of the training depends on the circumstances of the clinic on that day.	14	82.4
The status of the training changes depending on the type of surgery.	11	64.7
The status of the training changes depending on the type of anesthesia.	8	47.1
A nurse provides training at a suitable time.	8	47.1
There is a certain time for training.	5	29.4
Antimicrobial prophylaxis		
Taking antibiotics depends on the patient's operation.	13	76.5
A broad-spectrum antibiotic is given to each patient before surgery.	11	64.7
Antibiotic dose is calculated according to the length and weight of the patient.	6	35.3
The status of taking antibiotics depends on the patient's physician.	5	29.4
The patient is evaluated according to the risk of DVT and the application is performed accordingly.	12	70.6
The operation depends on the characteristics of the patient.	12	70.6
Thromboprophylaxis treatments vary according to the patient's physician.	6	35.3
Preoperative bowel cleansing		
Mechanical bowel (enema) cleansing is done.	11	64.7
The bowel cleansing is decided at the doctor's request.	11	64.7
Complete bowel clearing is done the day before surgery.	10	58.8
The medical bowel (antibiotic use) cleansing is done.	5	29.4
Pre anesthesia medication		
Premedication depends on the physician's request.	11	64.7
Premedication is applied to everyone.	11	64.7
Premedication is applied according to the type of the surgery.	7	41.2
Preoperative skin preparation		
Hair removal is done according to the patient's operation.	10	58.8
Skin cleansing is not performed unless it is necessary.	8	47.1

Table 1: Implementation Status of Preoperative ERAS Protocols (n = 17).

Discussion

Post-operative healing protocols shorten the length of hospital stay, accelerate healing, and contribute to a reduction in morbidity. It takes time for these protocols to be put into clinics and make them standardized practices. This study identifies the implementation

status of the developed protocols in the preoperative patient preparation in the university hospitals included in the study.

We found that in nearly all of the clinics the patients were not fed after 12 am, regardless of their Body Mass Index (BMI), diabetes, or type of the surgery. In their studies evaluating the ERAS protocol implementation status, Gustafson and colleagues stated that initiatives to improve the compliance with the protocol are required and initiatives to improve practices related to preoperative fasting time should be increased [21]. The results of this study showed that preoperative fasting period was carried out with the conventional method in hospitals. New strategies are required to change this practice and further studies should be carried out on this field.

We found that in the majority of the clinics in the study complied with the protocol about informing the patient before surgery. In a qualitative study on the obstacles in front of ERAS practices by Pearsall and colleagues, it was stated that patient training was important for the recovery of the patient but the applications were not carried out at the desired level. They also expressed the need for different initiatives in determining the obstacles in front of ERAS applications in the same study [22]. It was observed that the training was the most compatible item in the ERAS protocols in the clinics. However, the nature of the trainings performed must also be questioned.

We found that all of the clinics had antimicrobial prophylaxis, but the times of administration were different. In the majority of the clinics, antibiotics were applied to the patient one day before the surgery. In a systematic study, Hughes and his colleagues found that antibiotic administration was performed routinely in the two of the articles they reviewed but not performed in the others [23]. The studies showed that there were differences among the clinics. It may be thought that the identification of post-operative healing protocols will prevent these differences. However, it is anticipated that it will take time for these applications to be put into practice.

It appears that more than three out of five clinics evaluated and took measures in terms of DVT. However, we found that the use of compression socks in major applications over the age of 40 was not made in accordance with ERAS. The studies conducted by Pędzwiatr et al. on ERAS protocol implementations show that protocol implementation is a gradual process and thromboembolic use is performed in accordance with ERAS [24]. The results of the research are different from each other. This difference caused by the obstacles in front of applications demonstrates the necessity of planning initiatives to improve existing practices.

We found that mechanical bowel cleansing continues to be applied in more than half of the clinics. In a systematic study conducted by Coolsen et al., no bowel clearance was observed in the clinics [25]. The results of the study indicate that the practices of preoperative bowel cleansing are different. It may be advisable to determine practice standards in order to eliminate differences between the clinics and develop new strategies to remove the obstacles.

Limitations of the study

It can be said that this study has many limitations. The results of the study are limited to the statements of the charge nurses of the clinics. An application that is not often done in the clinics may not be expressed by the nurse. The charge nurses may have stated a protocol which was not, in fact, implemented in order to make the clinic's situation more positive. The number of participants is not sufficient to make any statistical comparisons. However, charge nurses are responsible for the clinics and are the right people to inform about practices in a clinic. We can argue that the results will not differ if we work with all the nurses in the clinics. In this context, this small study is a kind of photograph about the implementation of the ERAS protocols. Different studies may be planned with patients to obtain more comprehensive information.

Conclusion

According to the results of this study, there were differences among the implementations in the university hospitals where the study was conducted. Only for preoperative informing, ERAS strategies were applied in the surgical clinics of the hospitals. It was determined that preoperative fasting practices were not performed in compliance with the protocol, antimicrobial prophylaxis was performed but the timing was not appropriate to the protocol. Prophylaxes of thromboembolism were applied in very few clinics in major surgeons. In surgical clinics, pre-anesthesia medication does not follow ERAS protocols. It was determined that the determined attempts to accelerate post-operative healing were not performed in the clinics. Conducting further similar studies to identify clinic status of hospitals will allow the detection and elimination of obstacles in front of applications. Thanks to conducting this kind of studies, it will be possible to show the differences in the practices of the clinics and carry out standard health services.

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