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Cilt:1, Sayı: 01

Evaluation of the Reasons for Cancellations of Surgical Among Orthopedic Patients

Ortopedi Hastalarında Planlı Cerrahi İptallerinin Nedenlerinin Değerlendirilmesi

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ABSTRACT

Aim: The cancellation of surgery is defined as the failure to carry out the surgery planned for a patient on the day the procedure is listed on the surgical schedule. Orthopedic surgeries have a high cancellation rate as in other surgical procedures. This study aims to identify of the reasons for the cancellation of surgery in patients who will undergo surgical intervention.

Method: This was a descriptive study that was conducted between December 2016 and May 2017 with 76 patients who were hospitalized in an orthopedic clinic of a university hospital and whose surgery was canceled. Data were collected using a patient identification form prepared in line with the literature. Data were analyzed using Statistical Package for the Social Sciences 20.0.

Results: It was determined that 82.9% of the patients learned from the doctor that their surgeries were canceled. It was determined that 28.9% of the surgery cancellations were due to the insufficient number of beds in the intensive care unit or the post-operative clinic, and 28.9% of them were due to the increase in the number of patients scheduled for surgery due to emergencies. The avoidable surgical cancellation rate was 55.3%. It was determined that 85.5% of the patients were upset after learning that their surgery was cancelled.

Conclusion: It can be suggested to investigate the reasons for the cancellations of the initiatives, to produce strategies to eliminate or reduce preventable causes, to produce strategies to reduce preventable causes, and to make necessary regulations.

Keywords: Surgical cancellations; patient; elective surgical procedures; orthopedic surgery; orthopedic nursing

ÖZET

Amaç: Ameliyat iptali; cerrahi işlemin planlandığı günde ameliyat listesinde yer alan hastaların ameliyatlarının gerçekleştirilememesi olarak tanımlanmaktadır. Ortopedik ameliyatlarda da, diğer cerrahi girişimlerde olduğu gibi iptal oranı yüksektir. Bu çalışmanın amacı; cerrahi girişim geçirecek olan hastalarda ameliyatlarının iptal nedenlerini belirlemektir.

Yöntem: Çalışma, tanımlayıcı olarak Aralık 2016 – Mayıs 2017 tarihleri arasında bir üniversite hastanesinin ortopedi kliniğinde yatarak tedavi gören ve ameliyatı iptal edilen 76 hastanın katılımıyla gerçekleştirildi. Veri toplamada, literatür doğrultusunda hazırlanan Hasta Tanıtım Formu kullanıldı. Veriler SPSS 20.0 paket programında analiz edildi.

Bulgular: Hastaların %82,9'ının ameliyatlarının iptal edildiğini doktordan öğrendiği belirlendi. Ameliyat iptallerinin %28,9'unun yoğun bakım ünitesinde ya da ameliyat sonrası klinikte yetersiz yatak sayısından ve %28,9'unun ise, acil durumlar nedeniyle ameliyat planlanan hasta sayısındaki artıştan kaynaklandığı belirlendi. Önlenebilir cerrahi iptal oranı %55,3 olup, hastaların %85,5'inin ameliyatının iptal edildiğini öğrendikten sonra üzüldükleri saptandı.

Sonuç: Girişimlerin iptal nedenlerinin araştırılması, önlenebilir nedenler varsa ortadan kaldıracak ya da azaltacak stratejilerin üretilmesi, ve gerekli düzenlemelerin yapılması önerilebilir.

Keywords: Cerrahi iptaller; hasta; isteğe bağlı cerrahi işlem; ortopedik cerrahi; ortopedi hemşireliği

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INTRODUCTION

The cancellation of surgery is defined as the failure to carry out the surgery planned for a patient on the day the procedure is listed on the surgical schedule (Huda, 2014). In their study, Xue et al. (2013) have reported surgery cancellation rates of 4.6% for outpatient surgery and 18.1% for inpatients. It is stated that cancellation rates are more higher in cardiovascular procedures and orthopedic surgeries from the others which rely on special equipment, instrument trays, and prosthetic devices (Anarfi et al., 2020; Argo et al., 2009; Askari et al., 2019; Ayele et al., 2020). It has been reported that the surgery cancellation rate in orthopedic clinics varies between 20%-41.5% (Ayele et al., 2020; Haile and Desalegn, 2015; Mutwali et al., 2016;Ogwal et al., 2020). The incidence of emergency cases in these areas of surgery results in rapid and frequent changes in surgical schedules that lead to cancellations (Altun et al., 2020; Ayele et al., 2020).

Following surgery cancellations, patients may have to stay in the hospital and wait for a rescheduling of their operation for up to five days (Karnalkar and Karnalkar, 2015). The consequences of this are that patient beds remain occupied, the risk of infection rises, hospitalization durations are prolonged, additional treatment requirements arise, and medical costs increase for both patients and the institution (Altun et al., 2020; Dadaş ve Aslan, 2004). It is reported that the cancellation-related cost of orthopedic surgery increases by 21.2% (Maimati et al., 2016). It is noted that school attendance for pediatric patients is adversely affected, and families of patients incur financial losses when they have to prolong their absence from the workplace to attend to their loved ones (Lee et al., 2017). Sommer, Jacobsohn, & El-Gabalawy (2021) found that 10.6% of patients whose scheduled surgeries were canceled experienced stress/anxiety related to waiting for surgery. In their study, Herrod et al. (2019) stated that patients and families have lost a mean of five working days after the cancellation of surgery. In short, surgery cancellations have a negative psychological, social, and financial impact on healthcare professionals, patients, and their families (Lee et al., 2017).

It is reported that surgery cancellations largely stem from the patient, surgical team and administration-related factors. In addition it was reveals that 59.2% of surgery cancellations arise from avoidable reasons and that surgeries canceled due to these avoidable factors raise surgery costs by 62.1% (Maimati et al., 2016). Some of the avoidable reasons for cancellations on the daily operation are due to be performed are inadequate preparation before surgery, bad timing, the need to further consult family members, abnormalities in bloodwork, and the presence of infection (Argo et al., 2009).

To avoid the losses experienced due to surgery are cancellations, healthcare personnel must know the reasons behind the cancellation and review their acceptability so that they can arrive at a decision that is in keeping with organizational policies (The Association of Anaesthetists of Great Britain and Ireland, 2010). While doctors [surgeons/assistants doctor] should be the ones to explain the surgery cancellation and the reasons for it to patients and their families, nurses should work toward taking the necessary precautions to prepare patients and families for this situation (The Association of Anaesthetists of Great Britain and Ireland, 2010). It can be seen that different methods have been reported in the literature about what can be done to reduce the number of

surgery cancellations. Talalwah et al. (2019) found that preoperative calls two days before the operation and doing a weekly review of the operation schedule was effective to decrease the rate of cancellation of surgery. In a study by Lee et al. (2017) it is reported that surgery cancellations have been reduced by half through the efforts of nurses to phone patients and their legal representatives before the operation to carry out a comprehensive evaluation against a surgical checklist. Sebach et al. (2015) point out that comprehensive care is given to and evaluations made of patients in the clinic before an operation significantly reduce material losses incurred due to the cancellation of surgery.

The results of this study will indicate reasons for cancellations orthopedic clinic specific and support producing solutions for problems. This study aims to identify of the reasons for the cancellation of surgery in patients who will undergo surgical intervention.

MATERIAL and METHODS

Sample and Setting

This was a descriptive study that was conducted between December 2016 and May 2017 with 76 inpatients in the orthopedic and traumatology clinic of a university hospital. The university hospital has approximately 1000 beds. The orthopedic and traumatology clinic with 6 surgeons, 10 assistant doctors, and 11 nurses and it has 28 beds. Elective surgeries are performed in 2 operating rooms, hospital's elective surgical lists are prepared by assistant doctors in consultation with the surgeons. Elective surgical procedures are performed on 7/24. The mean daily number of operations is 7.

The universe of this study consisted of patients whose surgery was canceled on the date of this study. Based on the findings (rate of surgery cancellations stem from patient 7%) in the article titled, "Causes of cancellations on the day of surgery at a Tertiary Teaching Hospital" by Kaddoum et al. (2016) the sample size was calculated as 76 at a confidence interval of 99%, and a 5% margin of error. The criteria for inclusion in this study encompassed patients who had been scheduled for elective surgery and were inpatients in the orthopedic and traumatology clinic, who were older than 18 years of age, had no visual or hearing problems and had consented to participate in the research.

The reasons for cancellation were examined in two parts as avoidable and unavoidable reasons by evaluating the previous study results. Inadequate equipment and the number of beds, not follow preoperative instruction, the existence of infection, changes in vital signs, laboratory results and insufficient preparation before surgery were among the avoidable reasons. Breakdowns in tools and equipment, increase in the number of patients scheduled for OR, and unavailable surgeon were among the unavoidable reasons (Abate et al., 2020; Askari et al., 2019; Caesar etal., 2014; Kaddoum et al. 2016; Maimati et al., 2016).

Data Collection

Patients were informed about this study, and their informed consent was verbally/written obtained before the questionnaire form was applied and it was emphasized to them that they could withdraw from this study anytime they wish. It was told to all patients that the information obtained would be used for only the scientific purpose and their verbal consent was taken.

The "Patient Descriptive Form" drawn up by the researchers based on the literature (Huda, 2014; Karnalkar and Karnalkar, 2015) was used in the data collection. This form consists of 12 open-ended questions

on the patient's age, gender, education, the existence of a chronic illness, scheduled procedure, the duration of preoperative hospitalization, and other descriptive features as well as the name of the planned surgery, the reason for the surgery cancellation, from whom and where the patient has learned of the cancellation, the time of cancellation and the patient's feelings about the change of schedule. Before the study, the form was administered to 10 patients and the form was used without revision because no negative feedback was received. Response rate was 100%.

The cancellation of the surgery and reasons for it was learned verbally from the service nurses or assistant doctors. The patient, whose surgery was canceled, was visited by the researchers within the first 15 minutes in his room. Patients whose scheduled surgeries were canceled were interviewed in the orthopedic and traumatology clinic after the cancellation decision and they were given information about the study. The patients consenting to participate were asked the questions on the Patient Descriptive Form. The interviews ended when the patients answered all of the questions on the form. The data collection period completed an average of 10 minutes.

Data Analysis

Data were analyzed using SPSS 20.0 software (SPSS, Inc., Chicago, IL, USA). Collected data expressed by descriptive statistics (mean, frequency, percentage, standard deviation).

Ethical Considerations

Ethical approval for the study was approved by The Trakya University Medical Faculty Scientific Research Ethical Committee (TUMF-SREC 2016/252, decision no: 19/01) and institution permission was obtained from the directory of the hospital (no:79056779-600/86364). Patients' verbal and written consent was taken.

RESULTS

The mean age of the research participants was found to be 57.1±15.2 years; 86.8% were elementary school graduates, 48.6% had a chronic illness (diabetes, cardiovascular diseases, rheumatic diseases), and the mean duration of hospitalization before the surgery cancellation was 5.65±6.10 days (Table 1).

Table 1: Distribution of Patients by Individual Characteristics (n = 76)

Individual characteristics	n (%)
Gender	
Female	42 (55.26)
Male	34 (44.74)
Educational status	
Elementary school	66 (86.84)
High School	10 (13.16)
Chronic illness	
Yes	37 (48.68)
No	39 (51.32)
Age (Mean ± SD)	57.07 ± 15.14
Duration of hospital stay before surgery (Mean ± SD)	5.65 ± 6.10

n: Number of case, **SD:** Standard deviation

No illness or drug-related complications were observed on the day of postponement of surgery in patients with comorbidities.

Most of the patients (53.9%) were scheduled for total hip replacement. Of the participants 82.9% had learned about the cancellation of their surgery from the surgeon, 80.2% had been informed in the patient's room and 60.5% had been informed in the afternoon (Table 2).

Table 2: Patients' Status of Being Informed (n = 76)

Whether the patient was informed	n (%)
Person informing the patient	
Doctor	63 (82.90)
Nurse	13 (17.10)
Where the patient was informed	
Patient room	61 (80.26)
Operating rooms	11 (14.47)
Nurse's station	4 (5.27)
Time of informing	
Morning	18 (23.68)
Afternoon	46 (60.52)
Evening	12 (15.80)

n: Number of patients

The avoidable reasons for cancellation were 55.3%, unavoidable reasons for cancellation were 39.4% and 5.3% were not informed about the reason for the cancellation (Table 3).

Table 3: Classification of Reasons why Patients' Surgeries were Canceled (n = 76)

	Avoidable reasons n(%)	Unavoidable reasons n(%)
Inadequate equipment	1 (1.3)	
Breakdowns in tools and equipment		3 (3.9)
Inadequate number of beds	22 (28.9)	
Increase in number of patients scheduled for OR		22 (28.9)
Having taken an oral antidiabetic medication	3 (3.9)	
Existence of infection	2 (2.6)	
Changes in vital signs, laboratory results	9 (11.8)	
Participating in scientific conferences, being on leave		5 (6.6)
Inadequate preparation before surgery	5 (6.6)	
Not being informed about the reason	4 (5.3)	

Of the participants, 85.5% were upset that their surgery had been canceled and 14.5% of them met the cancellation of the surgery as normal.

DISCUSSION

In this study, it was found that 53.9% of the surgery cancellations are patients who are scheduled for total hip replacement. Karahan et al. (2020) study it is reported that most of the surgery cancellations were fracture repair. Arun et al. (2019) stated that most of the orthopedic surgery cancellations were open reduction and internal fixation. Dadaş and Aslan (2004) stated that most of the surgery cancellations are patients who are scheduled for the hip prosthesis.

In this study, it was found that 82.9% of the participants had learned that their surgeries had been canceled from their surgeons/assistants doctor and that 5.3% were not informed as to why the surgery had been canceled. Karahan et al. (2020) found that 60% of patients were informed by the surgeon/ assistant and 40% of patients were informed by nurses. Mehta et al. (2014) stated that 54.7% of participants were notified by the nurse. In their study, Ivarsson et al. (2002) reported that in 73% of cases, the doctor, in 20.2%, the doctor and nurse together, informed the patient of the cancellation of the surgery. Alves Corral dos Santos and Mangini Bocchi (2017) stated that 0.4% of the patients in their study were not informed of the reason for the cancellation. Mehta et al. (2014) found that 13% of orthopedic surgery cancellation was note notified. We can say that the reasons for the cancellation of surgery should be explained to the patient by the doctor if such a necessity emerges.

Of the surgery cancellations examined in this study, 28.9% stemmed from the were not enough beds in the intensive care unit for postoperative care, 28.9% stemmed from an increase in the number of patients scheduled for surgery due to emergencies (28.9%), and deficiencies or breakdowns in the equipment (sterilized package is wet, torn, or punctured, absence of replacement equipment) used in the operating rooms. The literature contains similar reports of factors leading to surgery cancellations, such as an inadequate number of beds in the intensive care units (0.1%-20.7%) an increase in patients scheduled for surgery due to emergency cases (5.2%-21%), and deficiencies/breakdowns in equipment (1.2%-11.5%) (Anarfi et al., 2020; Haile and Desalegn 2015; Karahan et al., 2020; Karnalkar and Karnalkar, 2015; Mesmar et al., 2011; Mutwali et al., 2016). Lorenzo Pinto et al. (2019) reported that operations were canceled due to 44% deficiencies in equipment and 3% life-threatening cases. It may be beneficial to identify the avoidable and unavoidable factors contributing to surgery cancellations and to plan and implement appropriate interventions among nurses and surgical teams and administrators to lower cancellation rates.

It was seen in this study that among the reasons for cancellation of surgery were changes in the vital signs or laboratory results of the patients, having taken an oral antidiabetic medication on the morning of the surgery, the presence of an infection. The literature reveals that 15.9-47.5% of surgical cancellations are due to similar reasons (Altun et al. 2020; Arun et al., 2019; Ayele et al., 2020; Broullon dobarro et al., 2019). Similarly, it is reported in the literature that among the factors playing a basic role in the cancellation of surgical procedures is the presence of infection (18%), unwanted changes in vital signs/laboratory results (12.8%-14.2%), (Mesmar et al., 2011; Mutwali et al., 2016), not follow preoperative instruction and not stop the oral feeding (Ayele et al., 2020; Ogwal et al., 2009; Karki et al., 2020) and not stopping the use of acetylsalicylic acid before surgery (1.3%) (Mesmar et al., 2011). It is important to inform patients verbally and in writing when to stop oral administration of antidiabetic drugs, anticoagulants and other similar drugs, and to warn patients not to administer routine medication without a doctor's instruction during their hospitalization. Ensuring that medications are taken only under the doctor's control will help prevent surgery cancellations related to medication intake.

It was found in this study, (13.2%) that other causes of surgery cancellation were circumstances where the surgeon was attending a scientific conference or was off on leave (due to vital events such as death) and the other situations such as missing information in the anesthesia report or laboratory results and failure to prepare the patient before the procedure. The literature reveals that 2.5%-35% of cancellations stemmed from these conditions (traveling to conferences, the surgeon not available, surgeon unwell) (Arun et al., 2019; Kaddoum et al. 2016; Karahan et al., 2020; Tan et al., 2019). Similarly, the literature contains reports of problems with the surgical team that has led to surgery cancellations such as unavailability of the surgeon (1.1%-5.3%), inadequate preparation for the procedures (2%-6.6%) (Kaddoum et al. 2016; Lankoande et al., 2016; Lorenzo-Pinto et al., 2019; Xue et al., 2013) anesthetists were attending a workshop or a conference, and make changes to the patient’s management plan (Karki et al., 2020;

Ogwal et al. 2020). Since participation in scientific meetings is scheduled in advance, drawing up surgery schedules by taking into consideration that the surgeon will be on leave and creating checklists for preoperative preparations may be useful in contributing to preventing cancellations.

In this study, it was found that the avoidable reasons for cancellation were 55.3% in this study. Karki et al. (2020) found that a rate of 60% avoidable causes of cancellation of on-the-day surgery Askari et al. (2019) stated that the potentially avoidable reasons for cancellations are stemmed from the hospital and medical (51.0%) (such as not enough beds and unavailable equipment etc.). In the meta-analysis which consists of thirty-three, studies were found that avoidable cancellations of surgery were lack of operation theatre facilities infrastructure, inadequate preoperative evaluation, and preparation, patient and health professional lack of communications (Abate et al., 2020).

Of this study participants, it was determined that 85.5% were upset to learn that their surgery had been canceled and 14.5% met the cancellation of the surgery as normal. Karahan et al. (2020) determined that patients whose surgery was canceled were experiencing anxiety. Anarfi et al. (2020) stated that 46.7% of patients were disappointed with me the decision to cancel the surgery and 36.5% of them shown signs of depression and anxiety. Ivarsson et al. (2002) revealed in their study that 61% of patients who found out that their surgery had been canceled displayed a negative reaction and it was noted that there was a rise in the patients' depression and anxiety scores. Herrod et al. (2019) found that most of the patients whose scheduled surgeries were canceled endured sadness, anger, and disappointment. In the study of Dadaş & Aslan (2004) 96% of patients experienced negative feelings as a consequence of the cancellation of their surgery. Cancellation of elective surgery was found to be the cause of emotional trauma for patients and their families/relatives (Altun et al., 2020; Chalya et al., 2011). Informing patients before a procedure that their orthopedic surgery may be delayed due to emergency or traumatic cases and that surgery will be performed based on triage may help patients to accept surgery cancellations as a normal event.

Limitations of the Study

This study carried out at an orthopedic and traumatology clinic in a single center and during a 6-month during and also, the long-term effects of cancellations were not examined.

CONCLUSION

Decisions of surgery cancellations have a negative meaning for patients, health team members, and hospital administration. Cancellations can reduce patient satisfaction, increase costs of hospital, and the workload of health team members. The surgical team can help prevent cancellations by identifying avoidable factors, sharing their findings with management, and recheck preoperative preparation.

Since administrative factors have a large share in surgery cancellations, it might be recommended that the sake of reducing the number of cancellations that the reasons for cancellations are investigated and the needed regulations, produce strategies to eliminate avoidable causes, and regulations are made in line with the results. Orthopedic clinics should draw up assessment protocols before surgery with nurses checking to see to it that the necessary

preparations have been made. Improving communications in the patient-nurse-doctor chain may also benefit the cause of preventing cancellations. At the same time, another measure that may help patients to accept cancellations as a normal event is to explain to them before their surgery that emergency and traumatic cases may come up and in that event, patients will be scheduled for surgery time according to the importance and priority of the procedures to be performed. There is a need for studies evaluating the effectiveness of interventions that can reduce cancellations.

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Conflict of interest

The authors declare no conflict of interest to report.

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