

Last Minute Cancellation in Thoracic Surgery Education Research Hospital

Derdiyok O^{1*}, Tezel C² and Tezel Y³

¹Department of Thoracic Surgery, Okmeydani Education and Research Hospital, Istanbul, Turkey

²Department of Thoracic Surgery, University of Health Sciences, Sultan Abdülhamid Han Training and Research Hospital, Istanbul, Turkey

³Department of Chest Diseases, University of Health Sciences, Sultan Abdülhamid Han Training and Research Hospital, Istanbul, Turkey

***Corresponding author:** Derdiyok O, Department of Thoracic Surgery, University of Health Sciences, Sureyyapasa Chest Diseases and Thoracic Surgery Training and Research Hospital, Maltepe, Istanbul, Turkey, Tel: +905417690677, E-mail: onur_derdiyok@hotmail.com

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Abstract

Background: The cancellation of scheduled operations on the day of surgery usually leads to an inefficient use of the operating room time and causes waste of resources. In addition, surgical day cancellations create logistical and financial burden associated with lost time and missed opportunity costs due to prolonged hospital stay and repetition of preoperative preparations. It also causes discomfort for patients and their families. In this study, it was aimed to evaluate the reasons for the cancellation of elective surgery in a 40-bed chest surgery clinic and to investigate the finding needs to be done to eliminate preventable causes of these cancellations.

Method: During the 12-month period (August 2016 - August 2017), the operative lists were evaluated daily. As of August 2016, all patients scheduled to undergo elective surgery at the hospital were included in this study. The number of canceled operations was recorded and the reasons for these cancellations were examined.

Results: In the determined period, 87 (6.04%) of the 1439 elective surgical interventions planned were canceled. 55 of these 87 cases, which were canceled for various reasons, were found to be potentially preventable. The most frequent cause of cancellation with 39 cases (44.8%) was hospital-based. The number of patient-based cancellations was 31 (35.6%) and the number of physician-based cancellations was 17 (19.5%).

Conclusion: In this study, it was determined that the majority of cancellations were avoidable and related to the hospital. It was determined that the cancellation rate could be reduced by making the necessary preparations for the operation day in time and giving the necessary information to the patients. It was found that there could be a 2.2% decrease in the total cancellation rate only if the date of the surgery was reported correctly. The authors have no conflict of interest and sources of funding in this study.

Keywords: Thoracic Surgery; The Last Minute Cancellations

Introduction

Cancellation of operations in hospitals is an important question that has very comprehensive consequences. The main problem is that the planned operations are cancelled in the last minute, even on the day of surgery. Cancellation of planned operations is the main reason for inefficient use of time in the operating room (OR). Citation indicating that cancellation is the main reason for inefficient use of OR time. Most studies regarding OR efficiency would indicate turn over time between cases is where most time is wasted. Moreover, it is a waste of resources. It also causes stress and over-spending in patients due to lost working days and disruptions in daily life. In the studies conducted, it was determined that the cancellation was the repressive effect on the patients and the pre-surgical stress level was high [1]. Moreover, cancellations that are apparent on the day of surgery cause the loss of time due to repetition of preoperative preparations and the logistical and financial burden associated with missed income opportunities [2].

There are numerous reasons for the cancellation of elective surgical cases and these reasons vary from one hospital to another. Cancellations made at the last moment result in inefficient use of hospital resources and cause loss of capacity [3]. Cancellation of operations is a parameter for assessing the quality of patient care and the quality of the management system. Cancellation rates vary between 10% and 40% for different hospitals [4]. Surgical cancellations are generally categorized as preventable causes (planning errors, equipment inadequacy and inadequate preoperative evaluation) and inevitable cancellations (emergency changing elective scaling, unexpected changes in the patient's

medical condition, or absence of the patient for various reasons) [5]. The purpose of this prospective study is to analyse the causes of elective surgery cancellation in a 40-bed thoracic surgery clinic and to suggest precautions for optimal use of operating room time.

Material and Methods

The hospital that is the subject of this study is a tertiary hospital with a bed capacity of 500. There are 5 rooms in the OR where thoracic surgery, cardiovascular surgery and general surgery operations are performed. Generally elective surgery starts at 08:00 a.m. Elective surgery is a surgical process that given an appointment, planned and is the time of preparation. In the determined period, 87 (6.04%) of the 1439 elective surgical interventions planned were cancelled. Elective cases are selected and taken to the operating list by the decision of the surgical council. In this study, only the chest surgeon's case was taken to ensure homogenization. For the purpose of the study, the cancellation analysis is limited only to elective cases that are canceled on the day of surgery. Outside of the operating room, or emergency, lifesaving and minor surgical interventions are excluded from this study. Between August 2016 and August 2017, the operation list was prospectively assessed on a daily basis, and the reasons for cancelled cases were recorded instantaneously.

Data were collected on variables such as the number of elective surgery, the number of elective surgery cancelled, reasons for cancellation and reasons for having or not having surgery. Reasons for cancellation were collected under 3 main categories as hospital-based, physician-based and patient-based (Table 1). Hospital based causes were examined with the subheadings of blood center, intensive care bed capacity and medical equipment. Physician-induced causes are divided into long duration of first case, various health problems of physician and external causes such as meeting. Patient-based causes are classified as infections, family/individual causes, and incomplete or incorrect information. Cancellation reasons were recorded in the prospective computerized database provided by the surgeon or related personnel.

Reason for cancellation		N	Lung cancer		Benign diseases	
			Operated after the cancellation	Permanent cancellation	Operated after the cancellation	Permanent cancellation
Hospital-acquired	Blood center	19	16	-	3	-
	Intensive care unit	16	16	-	-	-
	Medical supplies	4	2	-	2	-
Physician-based	The duration of the first operation	11	10	1	-	-
	Physician health	2	1	-	1	-
	External causes	4	3	1	-	-
Patient based	Infection	6	5	1	-	-
	Family reasons and private matters	9	5	1	3	-
	Misinformation (Internet and /or social misconceptions)	16	12	6	1	7
Total		87	60	10	10	7

Table 1: Reasons for cancellation were collected under 3 main categories as hospital-based, physician-based and patient-based

Statistical Analysis

Statistical analysis of the study was performed using the Statistical Package for Social Sciences (SPSS) IBM Statistic version. 15.0 (SPSS Inc.; Chicago, IL, USA). Shapiro-Wilk test was used for data normality. Wilcoxon test and Mann-Whitney U test were used for intra-group comparisons. Intergroup changes in data that are not normally distributed. Variables were expressed as median, minimum and maximum. $P < 0.05$ was considered statistically significant. Sample size estimation "G * Power statik is a static software program with 80% power with 5% type 1 error.

Results

During the 12-month period, 87 operations (6.04%) out of 1439 elective surgical operations were cancelled. It was determined that the most frequent cause of cancellation was hospital-based with 39 cases (44.8%) followed by 31 cases (35.6%) patient-based cancellations and 17 cases (19.5%) physician-based cancellations respectively. Hospital-based cancellations, the most frequent cause of cancellation, were found to occur in three different ways as blood centers, intensive care units and medical supplies. Blood-centered causes are due to the lack of blood in the preoperative period when there is a need for blood and 19 cases in total are the most frequent cancellation in hospital-based cancellations. The need for the patient and his / her relatives to be more coordinated with the blood center was determined. This is the most often predictable and preventable cancellations. 16 cases have been cancelled because the intensive care unit which may be needed in the postoperative period is not separated during the preoperative period. The number of operations that are cancelled due to the lack of medical supplies or the lack of adequate supplies is four.

Physician-based cancellations were the least cause of cancellation. Physician-based cancellations were identified as 17 cases for three reasons. The first of the physician-induced causes was that the second case cannot be start in time because of the long duration of the first case, which is one of the understandable reasons for human nature. Eleven cases have been cancelled due to the prolongation of the first case.

In 11 cases with prolongation, 4 cases were performed due to emergency. The second reason for physician-based cancellations was that the health condition of the operator was not available, which was only a case of 2 cases. The third physician-based reason for cancellation was the annulment of the physician due to his participation in meetings and various scientific activities. Because the prolongation of transportation or studies during scientific activities causes OR inefficient use. The number of operations that are cancelled due to meetings or scientific activities was 4.

Patient-originated cancellation reasons were 31 cases in total due to infection, familial / individual reasons and misinformation / information pollution. The most common reason for not being taken to the re-operation list after the cancellation or having no surgery in another health institution is the patient-originated ones. In all 6 cases that were cancelled due to infection, patients had upper respiratory tract infection fever and white sphere height. While 9 cases were canceled for family and individual reasons, 16 cases were cancelled due to misinformation. The most common reason why patients who have been added to the operation list due to benign diseases are not operated in our hospital or other health facility after the cancellation is misinformed. All of the patients who have been added to the operation list due to lung cancer and who do not have surgery after the cancellation at another health institution are university graduates. There were no significant differences in terms of gender, age and educational level of the patients.

Discussion

A significant amount of work is required to prepare the patient for a surgical procedure. For this reason, it must be ensured that necessary preparations are made before surgery. Cancellations made in the last minute means inefficient use of resources and cause loss of capacity [6]. It is well known that the lack of proper use of resources has led to the victimization of low income groups; especially those whose health needs are more dependent on public or government services [7]. The cost of unused facilities and equipment ultimately increases the cost of services to the patient. In the UK study, the National Audit Office had thoroughly examined five provincial health authorities and concluded that despite large waiting lists, half of their capacity was used [8]. After the cancellations, for the patients and their relatives, due to the date on which the operation was postponed, it creates non-financial, logistical and psychological difficulties.

In addition to the effects on the patient, the family and the healthcare team, the institution is also increasing the costs of cancellation of surgical procedures. In a survey of 249 patients who were cancelled in a hospital Ribeirão Preto, 54 people had a direct cost of 1,713.66 Brazilian real (R\$). In this cost calculation, only the value of the reprocessed medicines and consumables was calculated. In the same study also found that the indirect cost of R\$ 10,782.40 in relation to the loss of profit opportunities for the institution and R\$ 29.54 per patient was related to the time spent in the unused operating room. Finally, in the study, it has been stated that these costs can be avoided when problems with administrative planning and management of the health center are addressed [9].

Van Klei, *et al.* [10] noted that that early pre-operative hospitalizations could significantly reduce day-to-day surgical cancellation-related residence times. Correll, *et al.* [11] have shown that a pre-operative evaluation clinic can effectively identify patient medical issues that can occur during the days when surgical delays or cancellations occur. Ferschl, *et al.* [12] investigated the effect of the number of preoperative clinic applications on surgical cancellation. A significant reduction in the surgical cancellation of clinic-inpatients was detected when the cancellation status of inpatient and non-inpatient patients was compared by one week before the operation. In terms of the timing of the preoperative evaluation, Pollard and Olson found no significant difference between the cancellation rate of the patients clinically evaluated within 24 hours before the operation and the cancellation rate of the patients clinically evaluated 2-30 days before the operation [13]. In our study, most of the patients were admitted 24 hours before the operation and clinical evaluation was performed.

Cancellations due to the long duration of the previous surgery or due to insufficient time for other operations planned due to the intervening emergency surgery are among the most common reasons for cancellation. Schofield, *et al.* [14] reported a rate of 18.7% for these cancellations because of the extension of the previous operation. In our study, 11 (12.6%) cases were detected to be cancelled due to the prolongation of the first case. Due to the common use of video assisted thoracoscopic surgery (VATS), thoracic surgeons occasionally face with technological and technical problems [15]. However, with the increased use of VATS, duration of hospitalization for minor surgical procedures has been reduced. Fast track has been found to be more frequent in clinical trials [16].

Most of the cancellations in this study were cancelled when there was less than 24 hours left to the operation. It was determined that 55 out of 87 cases that were cancelled for various reasons were potentially preventable. Hospital-based causes are the most frequent cause of cancellation, and the number of cancellations can be reduced with adequate preventions. Organized work with the blood center should be done. The number of intensive care beds should be sufficient for postoperative patients. Medical supplies must be supplied in advance. Physician-based cancellations are the least reason for cancellation. Physician's health is seen as important. Care should be taken not to have surgery on the operation list at least one day before the physician's scientific activities. The patient should be informed about the risk of infection during the preoperative period. Eight of the nine cases that are cancelled for family and individual reasons constitute female patients. In our country, unfortunately, discussions about women's rights continue. Women patients sacrifice due to various reasons within the family even in important health problems such as lung cancer. Women's patients should be informed especially by female health workers.

Conclusion

As a result, this study found that the majority of cancellations were avoidable and associated with the healthcare facilities. In this way, it was determined that a cancellation rate of 2.2% can be obtained on the day of the operation. In order to reduce the cancellation rate, it is also necessary to perform the necessary procedures in preparation for the operation day and to give the

necessary information to the patient. Only brief biopsy-like operations can take place a day in the week so that time and space can be used more effectively with this group of patients who will be discharged in one day. We advise that for the more efficient use of resources, all cases admitted for minor operations such as biopsies could be scheduled for the same day. Also it is possible to shorten the time of postoperative stay by increasing the percentage of minimally invasive procedures.

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