

Research Article

Causes of cancellation for elective orthopedic procedures on the day of surgery

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ABSTRACT

Background: A retrospective observational study was conducted to find out the reasons for cancellation of elective orthopedic surgical inpatients on the day of surgery and to plan for future suggestive actions to decrease unnecessary cancellations.

Methods: This was a retrospective observational study conducted at medical teaching hospital for 3 years from January 1, 2012 to December 31, 2014. The data was collected from postponement register. The files of cases that were cancelled were reviewed for the reasons of cancellations. The reasons were classified as anaesthetist related, administrative issues, surgeon related and patient related issues.

Results: During the study period, 7673 patients were posted for elective orthopedic procedures. 6.49 % patients were cancelled on the day of surgery. The frequency of cancellations was more in anaesthetist related issues (38.9%). Cancellations due to administrative issues, patient related issues and surgeon related were 30%, 27.7% & 3.4% respectively.

Conclusions: Although cancellations were only 6.49% of total elective operations, this can be reduced by implementing and following the recommendations that have been proposed. More thorough and detailed documentation is needed to achieve this.

Keywords: Elective orthopedic procedures, Anaesthetist related issues, Cancellations

INTRODUCTION

The cost of health care delivery is increasing everyday. Hence there is need for healthcare teams to encourage cost effectiveness in every aspect of patient care. It also leads to prolonged hospital stay and in many cases repetition of various aspects of pre-operative preparation. Apart from economic loss to hospital, it is also stressful for patients and their families. All of these increase patients therapeutic expense. Avoidance of cancellation of elective surgery, therefore should lead to reduction in the overall cost of treatment.

In UK 8% of scheduled elective operations are cancelled nationally, within 24 hours of surgery.¹ In total 10 to 40% of booked elective operations are cancelled before the surgery takes place. The reasons include cancellation by the patient, cancellation for poorly optimized medical conditions or cancellations due to poor organization, lack of co-ordination among the surgical team and the anaesthetist, or sometimes poor co-ordination between the patient and the hospital administration.² A variety of studies have examined the reasons for late cancellations based on the retrospective analysis of hospital records.³⁻¹² This audit was a retrospective study in a medical teaching hospital. The aim was to assess the causes of cancellation of orthopedic procedures scheduled on day of surgery and

to suggest measures so that there can be optimum utilization of manpower and resources. This in turn will help in making appropriate recommendations in interest of patients to avoid such cancellations.

METHODS

This audit was performed at teaching hospital over 3 years period from 1 January 2012 to 31 December 2014. This was a retrospective study of all elective orthopedic surgical procedures. Total 7673 patients were posted for elective orthopedic operations. The operation list is prepared by the surgeons before 4.0 P.M. The surgeons refer the patient to be posted for elective operation to the pre-anesthesia clinic for evaluation by anesthesiologist. Patients who are immobile are assessed in the ward itself. Patients who require further opinion/evaluation are advised accordingly. Patients which are admitted after 5.0 P.M. and could not attend pre-anesthesia clinic are assessed on the morning of the surgery itself. This audit was analysed by the findings from the postponement register in the Operation Room (OR). Other relevant data was collected from the respective files of the patients from the medical record department. The data recorded was as following; medical record number, age, sex, scheduled surgery, concerned surgeon, surgical specialty, whether the patient was seen in the pre-operative anaesthesia clinic and date of consultation, additional consultation requested from another specialty, date of additional consultation, date of admission, date of surgery, date of cancellation, reason for cancellation and name of consultant who postponed the case. A cancelled case was defined as a scheduled elective surgery that was cancelled on the day of surgery after the release of the operation list at 5 P.M. on the previous day. The overall cancellation rate was calculated from the total number of cancellations divided by the total number of scheduled cases.

RESULTS

Total 7673 patients were scheduled for elective orthopedic surgery during the study period. Cancellation occurred in 498 (6.49%) cases. Four thousand nine hundred and eighty seven (65%) patients were seen in the preoperative clinic and 2685 (35%) patients underwent preoperative assessment in the ward either a day before or on the day of surgery. For 333 patients (67%) of this group, preoperative evaluation was done in the clinic at variable intervals, ranging from 2 to 13 days before surgery. Remaining 33% of the patients were not referred to the pre-operative evaluation clinic before admission and first evaluation was done in the ward a day before surgery. The mean waiting time between cancellation and surgery ranged between 0 and 5 days. Of these patients 486 (98.3%) got operated at the same hospital.

Of the 498 case cancellations, the reason for cancellation was documented in 494 (Table 1).

Table 1: Of the 498 case cancellations, the reason for cancellation was documented in 494.

Categories	Cancellation reasons	No. (%)
Anaesthetist related issues	Abnormal blood investigations	2.1
	Medical consultation needed	24.8
	Medical condition not optimized	12.0
	Subtotal	38.9
Surgeon related issues	The patient needs further evaluation	2.8
	Surgery no longer needed	0.6
	Subtotal	3.4
Administrative issues	No ICU bed	0.6
	No blood for the patient	0.4
	No electricity in O.T.	0.4
	No water supply	0.6
	Inadequate linen	1.6
	Surgery running late	5.4
	Emergency operation inserted	21.0
	Subtotal	30.0
Patient related issues	The patient has an infection	0.4
	The family requested to postpone surgery	1.2
	The patient refused the surgery	2.0
	Relatives of patient not available	4.0
	The patient was not admitted	5.0
	Inadequate starvation	6.0
	Anticoagulants were not stopped before surgery	8.1
	Subtotal	27.7
Total		494

No detailed reason was available for 4 patients

Reasons for cancellation

The reasons for cancellation were classified as anaesthetist related, administrative issues, surgeon related and patient related issues. The frequency of cancellations was more in anaesthetist related issues (38.9%) than administrative issues (30%) and patient related issues (27.7%). The most common reason was anaesthetist related issues. In 12% of those cases instructions had been given by the anaesthetist for optimization of the disorder but were not followed or the patient developed new signs and symptoms between the time of evaluation and admission. All these patients had some cardiac or respiratory problem and there was not enough time for further consultation or optimization. The age range in this group varied from 5 months to 74 years. Twenty percent were males and 80% females. Sixty six percent cases were planned for major surgery. 6% of patients either did not adhere to or were given wrong instructions e.g. regarding dietary restrictions, stopping anticoagulant. Cancellations due to work-up factors included patients whose INR remained high despite stopping their anticoagulants.

DISCUSSION

Day of surgery cancellation causes emotional distress and has economic ramification. In addition in developing countries like ours, extended family members are involved, and there is no insurance cover. Operation room efficiency is indicated by case cancellation rate on the day of surgery. When defining efficient operation theatre, there is no consensus on the acceptable rate of cancellation but 5% is the generally recommended acceptable rate of case cancellation.¹³

There are many studies related to surgical cancellations from data collected within the institution to identify modifiable factors. Studies that define cancellation narrowly (single reason) have reported operating room cancellation rates less than 10%.¹⁴ Studies that include cancellation of all types, including patient no shows and administrative reasons, have reported operating room cancellation rates from 13% to 20%.¹⁵

In this audit medical ground (37% of cancellation) was the major cause of cancellation. This was due to the fact that most of the patients undergoing orthopedic surgeries were elderly with one or more co-morbidity which gets diagnosed either on admission or medical condition is not revealed to the surgeon. We can minimize these cancellations by giving proper instructions to the patient by nurse. When they are well informed, they feel more motivated, resulting in fewer cancellation. It has been suggested by Lee et al. that including patient in the planning process to reduce patient related cancellations especially poor preoperative investigations.¹⁶ Dufek et al. recommended improvement of protocol for preoperative patient evaluation improving the timeliness response by physician.¹⁷ In most of studies related to cancellations, planning and scheduling of elective surgery is focused while one of the common reason for cancelling elective surgery is emergency surgery given higher priority. This audit showed that almost 21% of cancellations were due to emergency cases with higher priority. This can be avoided by providing separate trauma operation room. Havlid E et al. have shown new pathway for planned patients thus reducing number of cancellation.¹⁸ There should be separate waiting list for trauma surgeries as per national guidelines in U.K.¹⁹

It was further observed that 5.4% cancellation were due to overrun of previous surgery and overbooking the schedule, which was most common reason in other studies.^{20,21} This can be reduced by keeping in mind the estimated operating time while preparing the OR schedule list.²² In a study it has been shown that there was cancellation rate of 11% when time needed for operation was underestimated by 10 minutes while it was 6% if time was overestimated.²³ For some surgeries, the total duration exceeded the usual surgical time due to an unexpected surgical complication, unavailability of sterilized instruments and technical problems in instruments which can be reduced by careful planning

and effective communication within the surgical team.^{24,25} All administrative issues (30%) like availability of blood, water, electricity supply and linen supply. These issues can be managed by effective and good communication and coordination between different departments involved in functioning of OR. Proper administrative measures can be taken by appointing OR administrator. Usually anesthesiologists, in their function as OR managers are indispensable in the surgical team. In study by Robert Hanss et al., overlapping induction i.e. induction of anesthesia with an additional team while the previous patient is in the OR, has been investigated. It has shown that overlapping induction increased productivity and profit.²⁶

To reduce cancellation because the patient not getting admitted in hospital, which was 5% in this audit, Basson suggested an adjustment of patient scheduling to book the in-compliant patients at the end of the surgical day.²⁷

The main difficulty encountered in this study is one that universally applies to any retrospective analysis - a lack of accurate information, though reasons of cancellations were documented adequately. Indeed in some instances, even if all the data was available, reasons for cancellation could feasibly be multi-factorial. There may also have been bias in assigning a reason to operations that were cancelled. Large difference in rate of cancellation is seen depending on whether the study is retrospective or prospective. Pollard et al. showed a 6.6% cancellation rate in a retrospective study and a cancellation rate of 13% in a prospective study which was twice that seen in the retrospective study.²⁸ This should be kept in mind while doing similar audits. Hussain et al. reported that 8% of cancellation of cases on the day of surgery, was anesthesia related.²⁹ There is a need to discuss planning and risk of anaesthesia with the patient and surgeon during preoperative evaluation to prevent day of surgery cancellation. Sometimes the cancellation occurred due to a difference of opinion between the anaesthesiologist evaluating the patient and the anaesthesiologist assigned for the surgery. It would be ideal if the same anaesthesiologist who performed the preoperative assessment also conducted the anaesthesia.

CONCLUSIONS

In this audit most of cancellations of elective procedures were potentially avoidable. Case cancellations can be reduced by improving preoperative assessment, requesting patient information on inter-current illnesses between preadmission and surgery, better interdepartmental coordination and defining more clearly the reasons for theatre over-runs in any future prospective audit.

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