

Anaesthetic reasons for cancellation of elective surgical inpatients on the day of surgery in a teaching hospital

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Abstract

Objective: A prospect audit was conducted to find out the anaesthetic reasons for cancellation of surgical in patients on the day of surgery, and to plan for future suggestive corrective actions to reduce unnecessary cancellations.

Methods: The audit was conducted at Aga Khan University Hospital for one year from 1st January to 31st December 2003. Data was collected monthly on a pre-designed form and the files of cases that were cancelled were reviewed by two consultants and labeled as justifiable or not justifiable cancellation.

Results: Eight thousand, five hundred and twenty six patients were scheduled for surgery during the study period, 359 (4%) were cancelled on the day of surgery after their names appeared on the operating room schedule. Only 28 (8%) of all cancellation were anaesthetic cancellations, 15 of which fell in nonjustifiable category.

Conclusion: Although anaesthetic cancellations were only 0.3% of total elective admissions, this number can be improved further in the interest of the patients by implementing and following the recommendations that have been proposed following this audit (JPMA 55:374;2005).

Introduction

Cancellation of cases on the scheduled day of surgery leads to ineffective utilization of operating room space and wastage of valuable manpower and scarce resources. It also leads to emotional distress and economic ramification for both patients and institution.¹ There is evidence that pre-operative assessment in an anaesthesia clinic can reduce the cancellation of elective patients.² An exception would be a patient who experiences an adverse medical event or illness between the time of evaluation and the time of the planned surgery.³

We conducted a prospective audit to determine the anaesthetic reasons for cancellation of surgical inpatients on the day of surgery. Our aim was to suggest improvements in the system to reduce such cancellations.

Patients and Methods

This audit was conducted over a one year period from 1st January 2003 to 31st December 2003 to find out the reasons for cancellation of surgical cases on the day of surgery by the anaesthetist. All our surgical patients undergo a preoperative assessment either in the preoperative clinic or on the wards a day before surgery. Institutional guidelines did not require the University Research Ethics Committee approval nor informed patient consent for this particular audit.

The agreed guidelines at our institution state that all surgical in-patients should be evaluated at the anaesthesia pre-operative clinic before they are admitted for surgery. A physician led pre operative assessment clinic is conducted daily on working days between 0900 hrs to 1700 hours and patients need no prior appointment. The clinic has been functional since 1996. In year 2003, 5527 patients were seen in the preoperative clinic.

Patients that are booked by the surgeon beyond the timings of the clinic are admitted a day before or on the day of surgery. Preoperative assessment of these patients is then done on the ward.

Patients are referred to the clinic directly from the outpatient surgical clinics after they have been evaluated by surgeons and scheduled for surgery. Patients visit the preoperative clinic either a day before surgery to up to a month before the surgery date. Current surgical history and other prior records are available. All support services like haematology, biochemistry, microbiology and radiology are also available. The clinic is staffed by an anaesthesia consultant and one resident. Nursing support is provided.

At the clinic patients get registered and have their height, weight, blood pressure and pulse recorded by a trained nurse. Each patient is then evaluated by a credentialed anaesthetist. A detailed history is taken, physical examination done and laboratory investigations advised according to the departmental guidelines. If electrocardiography is indicated it is obtained on site and evaluated before the patient leaves the clinic. A judgment is made whether the patient is fit to undergo anaesthesia. Some patients are then referred to another service (cardiology, medicine, endocrine or pulmonology) for optimization of their medical condition. Patients are rereviewed after consultation and optimization at the clinic before being given fitness for anaesthesia. Plan of anaesthesia (general, regional) is discussed with the patient along with post operative pain management.

The following day, clinic anaesthetist reviews all laboratory investigations. If patient needs further workup or correction both patient and surgeon are informed in order to

prevent cancellation on the day of surgery. Patients and their investigations are again reviewed after they are admitted to the surgical ward by a resident assigned to preoperative assessment (on the day of surgery for same day admission or a day before).

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For this audit all admitted inpatients, scheduled for surgery and whose name appeared on the surgical list of a particular day were included. In our institution this list is normally prepared by 1500, hours, a day before surgery. If a patient whose name appeared on the list was cancelled, this information was recorded on the list, along with the information whether the cancellation was done by the surgical or anaesthesia services. Absentees were not included. In case of an anaesthetic cancellation i.e the primary decision maker was the anaesthetist, an audit form was completed by the anaesthetist involved in the cancellation. This form recorded the following data; 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 consult requested from another specialty, date of additional consult, date of admission, preoperative visit by anaesthetist, date of surgery, date of cancellation, reason for cancellation and name of consultant who postponed the case. The total number of patients cancelled by the surgeons and for other reasons was also recorded.

Two anaesthesia consultants reviewed the reasons for cancellation independently; further details if required were collected by reviewing the medical record of the patient. The reasons for cancellation were divided by the reviewers into whether the postponement was justified or not. Those cases where a patient was declared fit for anaesthesia prior to the day of surgery either in the clinic or on evaluation a day before surgery and no further management was ordered, but was cancelled by the anaesthesia team on the day of surgery, was labeled as an unjustified cancellations. If the anaesthesia team had given instructions to optimize the patient preoperatively, but these were not followed by the surgeon, and later surgery was cancelled by the anaesthesia team on the day of surgery, this was labeled as cancellation justified.

A consensus decision was reached if there was disagreement between the two reviewing consultants.

The data was presented to the department on quarterly basis and also discussed in the departmental quality improvement committee. Recommendations were made to improve the process.

Results

Eight thousand, five hundred and twenty six patients were scheduled for elective surgery during the study period. Five thousand five hundred and twenty seven (65%) patients were seen in the preoperative clinic and 2999 (35%) patients underwent preoperative assessment in the ward either a day before or on the day of surgery. Three hundred and fifty nine (4%) of these were cancelled on the day of surgery after their names appeared on the operating room schedule for a particular date. Three hundred and thirty one (92%) cancellations were done by the surgical team and 28 (8%) by the anaesthetic team (Figure).

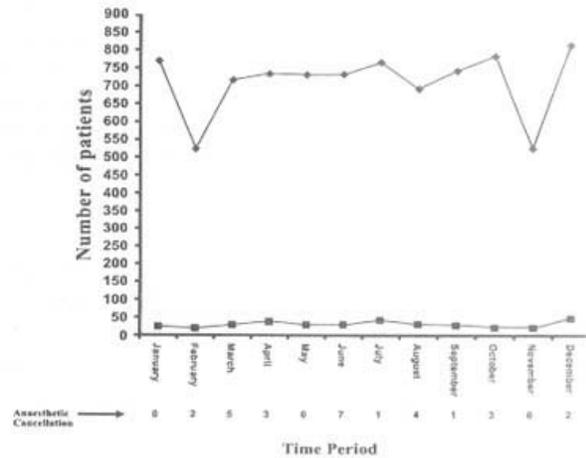


Figure. Monthly record of in patient cancellation from the "top" operating room list. January-December 2003.

Legend for figure. Total patients scheduled for surgery (♦): Total number of patients cancelled (■)

Out of twenty eight cases cancelled by the anaesthetists, fifteen (54%) were labeled as non justifiable cancellation and twelve (43%) were judged as justified cancellation by the two reviewers. Record of one patient was not available.

The age range in the non justifiable group varied from 6 to 68 years, 47% were males whereas 53% were females and 60% of cases were planned for major surgery. Presence of medical problems accounted for majority of non-justifiable cancellations (Table 1). In 10 patients (67%) of this group, preoperative evaluation was done in the clinic at variable intervals, ranging from 2 to 13 days before surgery. Remaining one third of the patients (33%) were not referred to the pre-operative evaluation clinic before admission and first evaluation was done in the ward a day before surgery.

In seven of these patients investigations (hemoglobin and haematocrit, blood sugar, X-ray and ECG), ordered by the anaesthetist, in the preoperative clinic, were not reviewed by either anaesthesia or surgical team till the day

Table 1. List of non-justifiable cancellation by the anaesthetist on the day of surgery.

Cases	Planned Surgery	Actions taken at preoperative assessment	Reasons for cancellation on the day of surgery
1	Removal of allograft	None	Haematocrit high, referred to haematology.
2	Microdisectomy	None	Haematocrit high, referred to haematology.
3	Carcinoma cheek, dental clearance	None	Haematocrit high, referred to haematology.
4	TURP and hernia repair	None	X Ray chest showed a mass in the mediastinum. Not reviewed till day of surgery. Referred to thoracic surgeon
5	Inguinal hernia repair	Thyroid function test	TSH found to be high. Not reviewed till the day of surgery
6	Mastectomy	None	Blood sugar high, seen on the day of surgery
7	Dilatation and Curettage	None	Blood sugar high, seen on the day of surgery
8	Laparoscopic appendicectomy	None	Treatment of upper respiratory tract infection
9	Laparoscopic cholecystectomy	None	Cardiac consultation and further optimization
10	TURP	None	Goitre diagnosed. Endocrinology consult requested
11	Urethroscopy	None	Cardiology consult.
12	Jaw flap	None	Cardiology consult
13	Splenectomy	None	Pulmonology consult.
14	Above knee amputation	Anaesthesia risk not explained	Risk explained in the waiting area, patient wanted further discussion with family members.
15	Wound debridement	Anaesthesia plan not discussed	When plan for regional explained in the waiting area, patient wanted further discussion with the family members

of surgery. In another six patients medical problems pertaining to the cardiovascular, pulmonary or endocrine system were picked up in the clinic but no further action was taken for these to be optimized. In two ASA III and IV patients, the risk of anaesthesia was not explained and plan of anaesthesia whether general or regional not discussed with the surgeon and patient. When the risk was explained in the waiting area and plan for regional anaesthesia discussed, patient refused surgery at that time and wanted further discussion with the family which led to the delay in surgery for a day or two.

In twelve patients cancellation was labeled as justified by the reviewers (Table 2). In all these cases instructions had been given by the anaesthetist for optimization of the disorder but were not followed by the primary team or the patient developed new signs and symptoms between the time of evaluation and admission. Seven (58%) were seen in the preoper-

ative evaluation clinic prior to surgery. Five (42%) were admitted a day before surgery and preoperative assessment was done in the ward. 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.

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. When a patient is scheduled for surgery, the patient and his family members take leave from their jobs, and may even come from another city. Sometime near relatives (children, parent) come from

Table 2. List of justifiable cancellation by the anaesthetized on the day of surgery.

Cases	Planned Surgery	Actions taken at preoperative assessment	Reasons for cancellation on the day of surgery
1	Paraumbilical hernia	Suitably optimized	High BP in Operating room 180/110
2	Cystoscopy	Cardiology consult advised	Consult requested Not done
3	Microdisectomy	Haematology consult advised	Consult not done
4	Incisional Hernia repair	None (Panhypopituitarism)	Patient had stopped taking steroid without informing
5	Club foot correction	Optimized by Paediatrician.	Chest infection on day of surgery
6	TURP	Pulmonary consult	Pulmonology consult Not done for chest infection
7	Acromioplasty	Cardiology consult	Consult requested Not done
8	Vocal cord nodule	Optimized by cardiologist	Hypokalemia, incidental finding.
9	Post partum tubal ligation	Cardiac consult requested	Cardiologist advised high risk to do under local anaesthesia but, kept on list for general anaesthesia
10	Anterior cervical disectomy	Pulmonology consult for ronchi in chest	Patient not optimized
11	Glaucoma tarsorrhaphy	Paediatric consult for airway anomaly	Paediatric surgeon and ENT surgeon not available on the day of surgery.
12	Septoplasty	Optimize chest infection	Not optimized

abroad. If the case is cancelled, their day goes unpaid (if the person is working on daily wages) and their travel expenses are wasted. Patients also suffer loss of admission charges when surgery is cancelled after admission to the hospital. Not only the patient suffers economically but the hospital also suffers an economic loss as the bed occupied by the patient is not available to other patients waiting for admission. Manpower (doctors, nurses, paramedics) goes waste as the number of hours spent on the patient is lost. Operating room time gets wasted where another surgery could have been scheduled. Tait et al in their study have suggested that last minute cancellation of surgery has an economic and emotional implication for both family and patient.⁴ Besides economic loss patient and their families get disappointed, frustrated and their anxiety level increases. Reactions of patients and their families to the cancellation on the day of operation has been studied in western culture by Dadas et al and found that some patients expressed extreme negative feeling and some even shed tears while some concealed their sadness from the relatives.⁵

Varying rates of reduction in surgery cancellation have been reported, with different definition of cancellations.⁶ Studies that include cancellation of all types (anaesthetic and nonanaesthetic), including patient no shows and administrative reasons, have reported operating room cancellation rates from 13% to 20%.⁷ Studies that define cancellation narrowly (single reason) have reported operating room cancellation rates less than 10%.⁸ We have only audited the reasons of cancellation by the anaesthetist and our rate was 8% of all cancellations or 0.3% of total elective admissions. We could not find a study in which only anaesthetist reasons for cancellation was studied, in order to compare our results.

There is plenty of evidence that preoperative assessment decreases cancellation rate. Asmakopoulus estimated a cancellation rate of 8% without prior preoperative assessment which dropped to three percent with assessment, in orthopaedic patients.⁹ Wilton concluded in his study that after the introduction of outpatient evaluation clinic the rate of cancellation for medical reasons decreased from two to 0.9 percent.¹⁰ Pollard et al noted a decrease in their outpatient cancellations (26% versus 6.6%) after the establishment of preoperative clinic but the inpatient cancellation was not affected (21 versus 19%).¹¹ In this audit medical reasons (80% of non justifiable cancellation) was the major cause of cancellation by the anaesthetist, which was either not picked up earlier or if diagnosed was not optimized.

The reasons for medical cancellations were reviewed, and the probable ones were inadvertently missing out on the abnormal results of the investigations done a day earlier, due to excess workload, cancellations due to med-

ical problems are especially upsetting for patients³ and should be avoided by devising appropriate protocols.

Patient compliance to instructions was also identified as an issue. A possible solution could be to give written instructions instead of verbal.

Large difference in rate of cancellation is seen depending on whether the study is retrospective or prospective. Pollard showed a 6.6% cancellation rate in a retrospective study¹¹ and a cancellation rate of 13% in a prospective study which was twice that seen in the retrospective study.¹² This should be kept in mind while doing similar audits.

Pollard¹² also studied the difference in the rate of cancellation when patient was evaluated 2-30 days before surgery and those evaluated in the ward 24 hours before surgery and concluded that it is difficult to define the optimal timing of the out patient pre operative evaluation. We were unable to comment whether the time of evaluation before surgery had any effect on the day of surgery cancellation in our patients.

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. The logistics of implementing this needs further discussion with the surgical department. Sometimes the cancellation occurred due to a difference of opinion between the anaesthetist evaluating the patient and the anaesthetist assigned for the surgery. It would be ideal if the same anaesthetist who performed the preoperative assessment also conducted the anaesthesia.¹³

In conclusion anaesthetists were responsible for cancellation of 8% of total cancellations done on the day of surgery at our institution. Although a small number, it can be improved further in the interest of the patient by implementing and following the recommendations that have been proposed following this audit.

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