



INCIDENCE OF CANCELLATIONS OF ELECTIVE OPERATIONS ON THE INTENDED DAY OF SURGERY AT A SUPER SPECIALITY HOSPITAL AND THEIR REASONS: A RETROSPECTIVE ANALYSIS

Healthcare

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ABSTRACT

Background: Any elective surgical case that is scheduled on the OT list on the day prior to surgery but not operated upon as scheduled can be regarded as an elective surgical case cancellation. Case cancellation is considered a major cause of wastage of material and human resources in the hospital and has a major impact of psychological setback to patients together with their families as well. Reasons for cancellations are quite complex and vary from hospital to hospital because they are correlated to patients in that area, management of hospital, organizational issues, and other hospital and OR staff.

Methods: Among 1600 participants, a retrospective hospital-based, cross-sectional study was carried out in a super speciality hospital. A self-administered questionnaire with an observatory checklist was used for collecting and assorting data from the OR managers, case related anaesthetists, nurses, and surgeons.

Results: In this study, 1600 patients were scheduled for elective surgical operations. Among those, nearly almost one-sixth 259 (16.19%) of the operations were cancelled and 1341 (83.81%) patients were operated on their planned date. The reasons for cancellation were patient related (65.3%), anaesthesia related (10%), management related (9.3%) and rest were surgeon related factors (1.2%). The cancellations happened mainly due to improper scheduling (14.3%) which were rescheduled at some other time, unavailability of surgeons (1.1%), unavailability of oxygen and blood (1.1%) and equipment (0.7%). Department wise if the study was viewed at, General surgery (27%) urology (20.8%) and orthopaedics (15.1%) were the commonest cancelled cases.

Conclusion: The cancellation rate at our medical centre remains relatively low. Patient related causes, medical illness, and management related causes were the commonest reason for the cancellation of elective operations.

KEYWORDS

cancellations, causes of cancellations, elective surgical cases, percentage of cancellations, management related causes, patient satisfaction, hospital administration

INTRODUCTION

Elective surgical case cancellation comprises of all elective surgical case that is on the surgical list on the day prior to surgery but not operated upon as scheduled. Case cancellation is a major cause of wastage of material and human resources in a hospital and leaves a major impact of psychological trauma to patients together with their families as well and brings down the patient satisfaction indices severely. Cancellations of surgical procedures also decreases efficiency, results in duplication of workload in an already high pressure, low resource environment and wastes operating room time. Reasons for cancellations are quite complex and change from hospital to hospital because they are correlated to patients, management and organizational issues, and clinical staff.

BACKGROUND

Cancellation of elective operations on the intended day of surgery (DOS) is considered when a patient's name on the list for surgical operations is there but the operation is not done on the intended scheduled date [1]. DOS cancellations are a world-wide problem, ranging from 0.37–28% in developed [2] and from 11 to 44% in developing countries [16]. Avoidable cancellations were the commonest though the reasons may be both avoidable or unavoidable [6]

Elective surgery cancellation is an elemental problem in hospital services—it causes considerable disruption to patient flow, further eroding often already hampered operating capacity, and negatively impacts both hospital reputation and patient satisfaction. Finding the root causes for these cancellations we can identify how to fix these problems, thereby improving the case flow and utilization of resources and creating a more uneventful patient flow. Surgical cancellation is a chief cause of OR underutilization [7]. Cancellation of elective operation decrease the over-all efficiency of the operating rooms (ORs), reduces utilization of OR time and results in wasted resources [6]. Cancellations subsequently end up with high financial burden for the patients and hospitals associated with extended length of stay and repeated pre-operative procedures and required tests. OR generates the

highest revenues and it's the largest source of revenues for the hospitals [3]. Delays and cancellations result in lost surgeon productivity and reduced staff morale and also causes psychological as well as financial trauma or distress to the patients and as well the families and a lot of wasted resources and lost income for the hospital thereby.

There are myriads of causes behind cancellations of elective surgery that may differ from hospital to hospital. The range of reasons given include inadequate pre-operative assessment and preparation, management related factors [5], or infrastructural limitations [4], lack of operating room time, and unavailability of hospital beds [8], patient-related factors [2, 4], surgery related factors (surgeon related issues, improper scheduling and Anaesthesia related factors).

The most common reasons of the cancellations are preventable [9]. This mandates the efficiency of the operating room theatre to be permanently improved through proper information around the scheduled cases. The purpose of this study was to assess incidence and causes of cancellation of elective operations on the intended day of surgery at a tertiary medical centre which is also a top-class referral centre in India. The findings of this study can be of use to us to maximize efficiency and patient satisfaction together with minimization of wastage of already limited hospital resources and manpower. Hospital administration boards can set their SOPs and targets after making feasible interventions in the study area, and use this study as a touchstone for further studies to achieve global quality goals.

Study Design And Settings

Methods

In a top-class super speciality hospital (which happens to be a tertiary medical centre) among 1600 participants a cross sectional, retrospective, hospital-based study was carried out. Material used was a self-administered questionnaire with an associate observatory listing for data aggregation from the OR managers, anaesthetists, nurse, and surgeons. The OR complex constitutes five main operation theatres.

The surgical cases here used were general surgery, orthopaedic surgery, gynaecologic surgery, urology, neurosurgery, oncosurgery and plastic surgery for both inpatient and outpatient. The study was carried out from Nov 1,2021 till March 31,2022.

Study Participants And Sampling Procedure

All patients who were admitted to the tertiary medical centre for elective surgical procedures from Nov 1, 2021 till March 31, 2022 were the supply population. All patients who were scheduled to undergo routine elective surgical operations, however because of some reasons may not have their surgery done were included and patients planned for minor surgery, who do not have preoperative surgical assessment sheet as well as emergency cases were excluded.

Variables And Measurement

The dependent variable of the research was the cancellation of surgeries and the independent variables comprised of age, sex and, the type of operation cancelled and reasons for cancellation. Cancellation of operation was outlined as any elective operation that was either scheduled on the final operation theatre list for that day or was later on added further to the list, and that was not performed thereon the intended day. The ground reasons for cancellation were classified as hospital-related, surgeon-related, and patient-related and anaesthetist related factors.

Data Assortment Technique, Quality Control

A structured form was custom made from a valid and modified individual patient questionnaire and other connected and feasible literature. Data was documented in a special form after being collected from the daily operation theatre list focusing on the cancelled cases. The causes for cancellations were provided by either the resident or the surgeon and prospectively recorded into the computerized software database. The appointed operation room staff confirmed the causes for cancellations and added additional clarifications, if required, by contacting patients over phone or through direct inquiry from the clerical and clinical staff the following day. The data was checked on daily basis for completeness and consistency so that no single detail was missed out.

Data Processing And Analysis

The data was checked, entered, sorted and analysed by using excel and pie charts. Descriptive and basic analytical statistics were employed to summarize the data. Data was presented in the form of proportions and pie charts. The analysis was done as per the STROBE statement checklist.

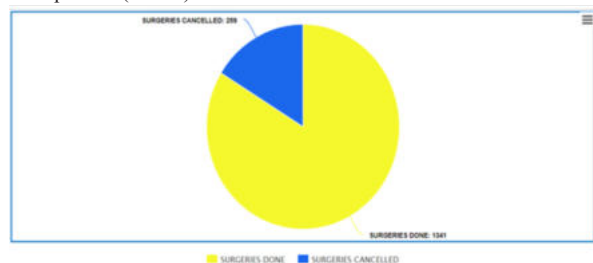
Ethical Considerations

Ethical clearance and permission were obtained from ethics committee of hospital. Informed consent was procured and confidentiality was assured for each case.

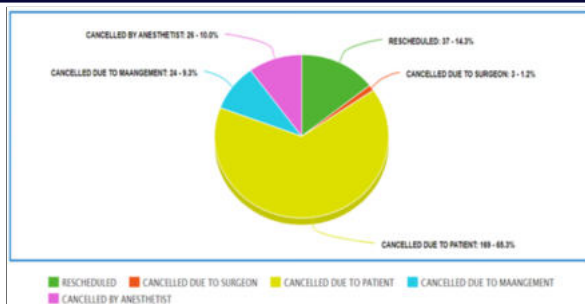
RESULTS

The results found on scrutinizing data are presented below.

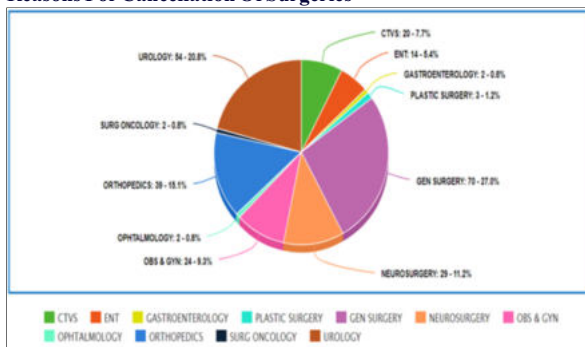
In this study, 1600 patients were scheduled for elective surgical operations. Among those, nearly almost one-sixth 259 (16.19%) of the operations were cancelled and 1341 (83.81%) patients were operated on their planned date. The most common reason for cancellation were patient related (65.3%), anaesthesia related (10%), management related (9.3%) and surgeon related factors (1.2%). The cancellation was mainly due to improper scheduling (14.3%) which were rescheduled at some other date, unavailability of surgeons (1.1%), unavailability of oxygen and blood (1.1%) and unavailability of equipment (0.7%). General surgery (27%), urology (20.8%) and orthopaedics (15.1%) were the commonest cancelled cases.



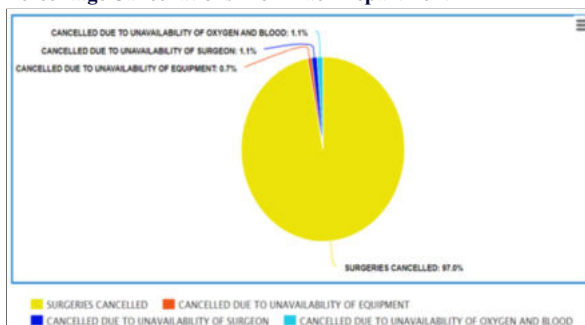
Total No. Of Surgeries Performed Vs Cancelled Out Of 1600 Posted Cases



Reasons For Cancellation Of Surgeries



Percentage Cancellations From Each Department



Cancellations Due To Unavailability Of Surgeon/ Equipment/ Blood Component

DISCUSSION

Cancellation of elective surgical operations in hospitals could be an important downside with several undesirable consequences. Cancellations impose a major drain on health resources, increase theatre running costs, decrease patient satisfaction, wasted operating room time and reduce efficiency. An efficient surgical facility should encounter a low rate of cancellation.

The study revealed that about 16.19% of the elective surgical case was cancelled, indicates preoperative system was efficient. The result of the study showed better results than other studies done in Burkina Faso, 36.7% [10] and Nigeria, 28% [1] Tanzania, 21% [4], New delhi, 17.6% [11]. But, this percentage is higher than when compared to other studies done in America, 4.4% [12], Brazil 6.8% [13], German, 12.7% [14], Wales, 7.6 [15]. This hospital being the largest specialized hospital at the regional level, obviously lands up with higher case flow and referral cases, resulting in decreasing operating room time and further giving priority to emergency referral cases subsequently ends up in increased number of cancelled cases.

The most common reason for cancellation in our study were found to be patient related (65.3%), anaesthesia related (10%), management related (9.3%) and surgeon related factors (1.2%). The cancellation was mainly due to improper scheduling (14.3%) which were rescheduled at some other time. Unavailability of surgeons (1.1%), unavailability of oxygen and blood (1.1%) and equipment (0.7%) conjointly contributed to the causal factors. General surgery (27%) urology (20.8%) and orthopaedics (15.1%) were the commonly cancelled cases. Unavailability of surgeon due to scheduling of emergency surgery is known for postponement of elective cases on the day of surgery. Over scheduling of elective surgery possibly ends up in

lack of obtainable operating room time, leading up to cancellation of an elective case on the day of surgery.

This study additionally revealed that patient-related factors were the foremost common reason for the cancellation of elective surgical cases accounted (65.3%) of cancelled cases. Cancellation of cases caused by patient related factor was mainly due to medical illnesses as well as patient not turning up on the day of surgery due to alleviation of symptoms. Patients sometimes don't stop medications prior to the day of surgery and these drugs might affect the surgical procedure and action of the anaesthetic agent which also results in postponement of the date of operative procedures. Patients should also be seen within the OPD clinic as close to the day of operation as possible to double check their commitment and readiness, to avoid last minute cancellations. Patient not prepared for surgery was also a tangible reason leading to cancellations. It should be mandatory to confirm that patients are adequately ready pre-operatively to detect even the slightest issue which could be contraindicate elective surgery. Cancellation of operations due patients not being prepared properly could be avoided by improving communication and coordination between patients, doctors and nurses.

Moreover, the study showed that general surgery cases (27%) followed by urology (20.8%) and orthopaedic surgery (15.1%) were the commonest cancelled cases. This high rate of cancelled general surgery, urology and orthopaedic cases could be a mirroring of the very fact that these departments have an extensive theatre list compared with all the other specialties, followed up by higher probability of cancellations. Conjointly considering the fact that high rate of trauma and road traffic accident within the study space ends up in giving priority for emergency surgical, urology and orthopaedic cases. It may also be explained due to the fact that lack of cross-matched blood results in high rate of cancellation as general surgeries, urology cases and orthopaedic cases are invasive procedure, which are doubtlessly more at risk of excessive bleeding and largely may require transfusions.

This study can't build a causal relationship due to the data being complex and therefore it is a cross-sectional descriptive study. It would not be feasible to generalize this study to the general population hence it is a health facility-based study limiting thereto specific hospital solely where the study was carried out. Additionally, there might be a recall bias, and being a self-reported study may not provide the precise figure of the reasons behind cancellations.

CONCLUSION

The rate of cancellation in this medical care centre is relatively low. This study showed that the majority of cancellations were deemed unavoidable and patient related. In order to enhance cost-effectiveness and efficiency, efforts should be made to prevent unnecessary cancellations through careful planning and proper patient counselling. Improper scheduling, acute and chronic medical illness and other patient related and management related factors were the commonest reasons for the cancellation of an elective surgical case.

Cancellation of elective surgery can be prevented by simple steps and minimized if the patients with medical problems were detected early and referred for an anaesthetic assessment soon after they are scheduled for surgery. Proper scheduling, providing adequate information for the scheduled patient, fulfilling necessary operating room equipment's including cross-matched blood by hospital administrators and other stakeholders, clear communication with operating room team especially surgeons to be available on their schedule, and improved operation theatre efficiency were recommended to reduce avoidable cancellation.

Patient should be counselled properly for keeping the flow of operations regular and uneventful.

Acknowledgements

Authors are grateful to hospital staff and the participants of the study for their utmost cooperation.

Availability Of Data And Materials

The datasets used and analysed throughout the current study are available from the corresponding author.

Contributions

JJ designed the study, reviewed and analysed the study, and wrote up

the manuscript. MN, MAK AND MB were actively involved in design of the study, the oversight of the data assortment, data analysis and preparation of the manuscript. All authors read and approved the concluding manuscript.

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