

Cause and incidence of Cancellation of elective surgeries at Gondar University hospital, Ethiopia

Yonas Addisu Nigatu (✉ yonasaddisu71@gmail.com)

University of Gondar <https://orcid.org/0000-0003-4117-4202>

Habitu Adane Aytolign

University of Gondar

Research

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Abstract

Background: High rates of cancellation of surgical procedures are common in hospital settings which may subsequently lead to economic loss to hospital besides burden given to patients, their families and medical teams. It is well recognized that cancellation of patients from elective theatre operating lists increases cost, decreases efficiency, duplicates workload and wastes operating room time.

Cancellation of elective surgical procedures also causes significantly emotional trauma to the patients as well as their families and the community in general, and its impact on hospital resources is great due to prolonged hospitalization and high cost of health care.

The aim of this study was to find the causes and incidence of surgical patient cancellation at Gondar university hospital, North-west Ethiopia.

Methods: prospective observational study was conducted from January 10 to April 10, 2019. Information regarding the cancellation of surgeries were collected from various sources including; the operating room daily surgical schedule, preoperative anaesthesia record sheet, primary physicians, the anaesthetist responsible for the preoperative assessment and conducting the case and by communicating patients if required. Data were checked on daily basis for completeness and were entered to Epi info and analyzed using statistical package for social sciences (SPSS) version 20 software.

Result: There were 64 causes of case cancellation. The commonest reasons for cancellation were overbooking of elective surgeries (33.13%).

Conclusion: Preventable causes of case cancellation were the most prominent.

Background

The advantages of preoperative patient assessment prior to the surgery are to optimize medical condition of the patient before surgical procedure, improved patient safety and satisfaction, reduction of resources in terms of preoperative medical consultation, laboratory investigations and reduced length of hospital stay.[1–3]

The operation theatre has been reported to be the heart of a hospital requiring considerable human resources and expenditure from the hospital budget.[4]

Most hospitals in developed countries invest considerable resources in maintaining operating suites and having surgeons and theatre staff available on an agreed schedule. However, in developing countries where resources are limited, cancellation of elective surgical operations due to various preventable reasons is a common phenomenon in most hospitals. It is well recognized that cancellation of patients from elective theatre operating lists increases cost, decreases efficiency, duplicates workload and wastes operating room time.[1, 5, 6]

Cancellation of elective surgical procedures also causes significantly emotional trauma to the patients as well as their families and the community in general, and its impact on hospital resources is great due to prolonged hospitalization and high cost of health care.[7] [8]

Elective surgery cancellations always lead to insufficient utilization of manpower and hospital resources and can also lead to an increase in patients' treatment expenses due to prolonged hospital stay and in many cases, repetitions of pre-operative preparations and management.[9, 10]

The incidence of cancellation of elective surgical operations has been reported in literature to range from 20–40%. The causes of cancellation of elective surgical procedures are multifactorial and they tend to vary from one hospital to another.[4, 11]

In prospective audit done in Tanzania, the most common causes of cancellation were attributable to hospital administration in the majority of cases.[4]

In a similar study done in Pakistan patient related factors accounted for 58% of patient cancellation. Seventy five percent of these cancellations were done by the preoperative clinic anaesthetist, whereas 25% were done by the anaesthetist responsible for conducting the anaesthesia. The reasons for cancellations done by anaesthetist were for cardiac, endocrine and paediatric consultations for further workup and/or optimization before surgery. [3]

In another study done in National Hospital of Sri Lanka, The causes cancellation were coexisting medical problems which accounts 38.7%, administrative which accounts 25.5%, patient related which accounts 18.8%, surgical = factors which account 12.2%, anaesthesia related 2.8% and 17.9% were due to lack of theatre time.

In a study reported by *Fadlallah, R.* et al, hospital and administration related factors were the main reasons for operation cancellation.[12] Other researchers have reported that patient-related factors were more important.[6, 13]

In a prospective audit conducted by J Kwok, B Jones, unnecessary repeat requesting of laboratory tests were also the cause for patients cancellation.[14]

Methods

A prospective observational study was used and the study was conducted from January 10 to April 10, 2019.

All elective patients with their surgeries planned in the main operating rooms of Gondar university hospital during the data collection period were included.

Sixty four elective patients who met the inclusion criteria during the data collection Period were included

Our source to identify the cancelled cases were the daily operating room list. Reasons of cancellations were documented in a specified check list used for this study. A checklists were developed that addressed patient identity, the patient's demographic data, date of preoperative assessment, date of surgery, type of surgery, American Society of Anaesthesiologists (ASA) physical status and the reasons for cancellation of surgery. Reasons for cancellations were divided into patient related factors, anaesthesia related factors, surgical related factor and administrative factors. Cancellations were further classified as potentially avoidable and non-avoidable. Avoidable cancellations were defined as those cancellations that could have been avoided had there been adequate review of patients' medical records or communication by hospital personnel before the day of surgery.

Information regarding the cancellation of surgeries were collected from various sources including; the operating room daily surgical schedule, preoperative assessment form, physicians, the anaesthetist responsible for the preoperative assessment and conducting the case and by contacting patients if required. The checklist was pilot tested in the hospitals and changes were made before data collection. Data were checked on daily basis for completeness and were entered to Epi info and analyzed using statistical package for social sciences (SPSS) version 20 software.

Ethical consideration

Ethical clearance was obtained from GCMHS, department of anaesthesia Ethical Review Committee. Informed verbal consent was obtained from each study participant after clear explanation about the merits of the study.

Result

In order to identify the cause for these cancellations we have tried conduct a prospective study over a period of four months. All the patients with their surgeries scheduled in the main operating room of Gondar university hospital (GUH) were included. Patients who did not have a scheduled date of surgery at the time of presentation to the preoperative anaesthetic evaluation and patients with surgeries planned on locations other than the main operating room) were excluded from this study.

Our integral source to identify the cancelled cases was the daily operating room list. The cause of cancellations were documented in a specified form used for this study.

A total of 420 patients were scheduled to have surgeries in the main operating rooms. In these 420 cases 64 cancellations (15.23 % of scheduled cases) were noted. [Table 4]

The majority of causes of cancellation of surgical operations were related to surgery related factors accounted for 40.62% cancellations, of which, over booking/ long surgical list (33.13%), surgeon not available (3.74%), and patient require further surgical work up were a cause in (3.57%) of the cancelled cases. [Table 1]

The second causes of cancellation of surgical operations were related to Patient related factors accounted for 28.12% cancellations. Further break-up of this group showed that acute illnesses of the patients were a cause in 10.02% of the cancelled cases, patient unfit for surgery were 7.34% and unresolved lab. Abnormality (6.12%) and one case was cancelled because the surgery was no longer indicated (4.54%).

Hospital administration related factors accounted in 21.87% of cases of patient cancellation. Of these non-availability of operating room due to emergency operation (13.21%), shortage of operating time (5.32%) and Non availability of technician or other supportive staff (3.34%) were the most common causes of cancellation of surgical procedures.

Anaesthesia related factors accounted for 9.3% of patient cancellations. Seventy five percent of these cancellations were done by the anaesthetist responsible for conducting the anaesthesia on the day of surgery. Whereas, only 25 % were done on during the pre-operative period before the day of surgery. The reasons for cancellations done by anaesthetist were patient requires risk stratification and optimization before surgery.[table3]

Considering the ASA status of the patient and causes of cancellation, 100 % of anaesthesia related cancellations were in ASA III patients, no ASA IV patient was cancelled because of the anaesthetic reasons.[table 3] In patient related and surgical related cancellation of cases more than 85 % of patients were ASA I and II.

The highest cancellation among different surgery specialties was for general surgery 34 (53.12%), followed by orthopaedics surgery 11(17.18%). [Table 4]

Among the cancelled surgical cases 14 (53.8%) were scheduled by surgical residents and 12(46.15%) were scheduled by senior physicians. [Table2]

Discussion

The decision to postpone surgery has psychological, social and economic implications.

An efficient surgical service should have a low rate of cancellation of operations. If operations are cancelled, the operation theatres are underused; efficiency is jeopardized, waiting lists increases and costs rise. It is a well-known fact that if resources are not properly utilized, the general population suffers especially the lower income groups, who depend more on public or government services for most of their healthcare needs. The cost of facilities and equipment which is underutilized adds to the cost of its services which is ultimately passed on to patients

Pollard *et al*/ studied a similar patient population and showed that the most frequent reasons for cancellations were insufficient operating room time (21%), acute patient illness (19%), surgeons decision (16%), patient refusal (14%) and need for further medical evaluation (13%).

In another study by Dexter et al, reasons for cancellations were; anaesthetist related 13.9%, surgeons related 6.1% and patient refusals 8.6%.

In our study surgical related factors (40.62%) were the major cause for patient cancellation among which over booking/long surgical list accounts 33.11%.

Majority of the surgeons related cancellations in our study were because of over-booking of surgical lists. This is the possible preventable reason by better organization of the operating room scheduling and by utilizing the operating time efficiently.

Patient related issues (28.12%) were the second most common factors leading to the cancellation of elective surgery, among which acute illness of the patient were account about 10.02% The third most common cause of patient cancelation were administration related issues which accounts about 21.87% of the total cancelled case which is the possible preventable cause of cancellation

Anaesthesia related cancellations came out to be the fourth most common reason in this study (9.37%). We found all (99.99%) of the anaesthetist related cancellations were ASA III and all of them were postponed for optimization of medical condition before operation.

Seventy five percent (75%) of anaesthesia related cancellations were made by the anaesthetist responsible for conducting on the day of surgery and only twenty five percent (25%) were done on during the pre-operative period before the day of surgery.

In this study majority of the cases were cancelled by surgical residents 48(75%) and about 16(25%) were cancelled by senior physicians, among them over booking/long surgical list was the possible avoidable reason for patient cancellation.

The possible unavoidable reason in this study were uncontrolled medical illness, patient unfit for surgery, unresolved laboratory abnormality and emergency priority. This study shows that most causes for cancellation of operations were avoidable and steps must be taken to avoid these to enhance the utilization of operation theatre facility

Conclusion

We reported as high patient cancellation rate among which majority of them were voidable. The goal of every healthcare team should be to minimize cost of treatment by encouraging cost effectiveness in every aspect of patient care. Efforts should be made to prevent cancellation of elective surgery by careful planning, bearing in mind the local constraints in human and material resources. There is no point in preparing an operation list, which the available manpower and logistics cannot accomplish. Operation lists should be efficiently loaded to avoid under or over utilization of theatre facilities.

Abbreviations

ASA

American society of anaesthesiology

GCMHS

Gondar College of Medicine and Health Science

GUH

Gondar university hospital

SPSS

Statistical package for social science

Declarations

Ethical approval and consent to participate

No patient identification information was used to guarantee their confidentiality, so we request exemption from the Informed Consent.

Consent for publication

Not applicable

Competing interest

The authors declare that they have no competing interest

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Not applicable

Author's contribution

YAN was involved with protocol, project development, data collection and management, data analysis and manuscript writing.

HAA was involved in conception, design, literature review and execution of the study.

Acknowledgment

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Tables

Table 1 cause for cancellation of elective surgical patients

Factors related to	frequency	%
Patient Related Factors	18	28.12
Surgery related factors	26	40.62
Administrative related factors	14	21.87
Anesthesia related	6	9.37
Total	64	100%

Table 2 number of patients cancelled by senior physician and residents

Profession	frequency	%
Residents	48	75
Senior	16	25
Total	64	100

Table 3. Breakdown of anaesthesia related cancellations, surgical Specialties and ASA status.

Specialty	No. of Anesthetic cancellation	ASA status				%
		I	II	III	IV	
General surgery	3			III		4.68
Obstetrics and Gynaecology	1			III		1.56
Orthopedics	2			III		3.12
Urology/Gen/Obs	0					0
Total	6					9.37

Table 4. Patient cancellation of different surgical specialities

Specialty	Frequency	Percentage (%)
General surgery	34	53.12
Urology	9	14.06
orthopedics	11	17.18
GYN/obs	10	15.62
Total	64	100