CANCELLATION OF ELECTIVE OPERATIONS ON THE DAY OF INTENDED SURGERY ATTHE MAJOR OPERATING ROOM IN TIKUR ANBESSA SPECIALIZED HOSPITAL: POINT PREVALENCE AND REASONS.

BY: TASEW JEBESSA (MD)

A RESEARCHPAPER TO BE SUBMITTED TO ADDIS ABABA UNIVERSITY, COLLEGE OF HEALTH SCIENCE, SCHOOL OF MEDICINE DEPARTMENT OF ANESTHESIOLOGY FOR PARTIAL FULFILLMENT OF THE REQUIREMENT FOR ANESTHESIOLOGY SPECIALITY CERTIFICATE

NOVEMBER, 2017 G.C

ADDIS ABEBA, ETHIOPIA

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BY: TASEW JEBESSA(MD)

ADVISOR:RAHEL TILAHUN (MD, assistant professor of Anesthesiology)

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ABSTRACT

Background: Elective surgical case cancellation refers to any elective surgical case that is booked into the operation theatre list on the day prior to surgery, but is not operated upon as scheduled. Elective surgical case cancellation is common and can have significant adverse effects. The cancellation of planned surgeries causes prolonged wait times, harm to patients, and is a waste of scarce resources in countries like Ethiopia. Cancellation of scheduled surgery leads to operating theatre under-occupancy and is recognized as a major cause of emotional trauma to patients and their families.

Reasons for cancellations are complex and many; they are as unique as they are similar.

Objective: To determine the point prevalence of elective surgical case cancellations and the reasonsat the major OR in TikurAnbessa specialized hospital from June 1 to October 31, 2017 G.C.

Method: This was a prospective cross sectional study of the operation theatre list over a period of five months (June 1,2017-October 31, 2017). All patients scheduled to undergo elective surgeries at the major OR of the hospital from June-October 2017 were included. Data was collected by using pretested structured questionnaires and an assigned OR staff was recording the cancelled cases in real time. The assigned staff has confirmedthe cancellation reason and added additional necessary explanation.

Data wasentered in to SPSS version 20 for analysis. The result of study was explained by narratives, tables andgraphs.

Results: For the given study period, 1904 elective surgeries were scheduled to be performed at the major OR of TASH, of which 627 cases (32.9 %) were cancelled on the day of surgery. The average age was 37 years, with male to female cancellation ratio of 1.07:1. The main reasons for cancellation were management/facility related (45.9%), shortage of time related (31.4%), and Workup/medical conditionrelated (9.7%). Neurosurgery experienced the most cancellations (27.4%), followed by general surgery (16.3%).

Conclusion: This study found out that the cancellation of elective surgical operation on the scheduled day of surgery was very significant. Most of the reasons were deemed avoidableand commonest were management/facility related followed by shortage of time related.

Recommendation: Determining an easily avoidable contributors to the cancellations is an essential first step to developing appropriate interventions to improve OR efficiency.Implementation of patient preoperative assessment should be applied. A team approach ensuring presence of policies and procedures for improving and ensuring realistic scheduling of patient lists, reducing time spent preparing and cleaning the operating room and better handling resources should be applied.

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Above all let all the glory be to the almightyfor being my strength throughout my life.

Next my great gratitude goes to my family.

My friends and mates deserve special thanks.

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Contents

LIST OF TABLES AND FIGURES

ACRONYMS

DM-diabetes mellitus

ICU-intensive care unit

DOS-day of surgery

ENT-ear, nose throat

OR-Operation Room

PI-principal investigator

PRE OP-pre operative

SPSS- Statistical Package for the Social Sciences

TASH-TikurAnbessa specialized hospital

URTI-upper respiratory tract infection

LFT-Liver function test

ECG-Electrocardiogram

RFT-Renal function test

PFT-Pulmonary function test

AFI-Acute febrile illness

IHD-Ischemic heart disease

CHAPTER I:

INTRODUCTION

1.1BACKGROUND

Cancellation of elective planned surgical case is a known quality problem in healthcare system. Cancellation of elective scheduled operations on the day of surgery leads to an inefficient use of operating room (OR) time and a waste of resources. It also causes inconvenience for patients and families (1).

Moreover, day of surgery (DOS) cancellation creates logistic and financial burden associated with extended hospital stay and repetitions of pre-operative preparations as well as opportunity costs of lost time and missed income (2).

Reasons for cancellations are complex because they are related to patients, organizational issues, and clinical staff (3).

Unexpected surgical cancellations are not uncommon and they decrease patient satisfaction, waste medical resources, and undermine the morale of medical personnel.DOS cancellations are a world-wide problem with reported wide range of prevalence. There are numerous reasons for cancellations of elective surgical cases and these vary from one hospital to another. Cancellation reasons vary across studies including medical condition changes, patient no show, and scheduling issues (4).

Cancellation of elective cases is a significant problem in many hospitals in that it may lead to dissatisfaction of patients, increased costs and prolonged patient stay in hospital. It also reflects inefficiency in the management of the operating theatre (6).

Operation Theater is the heart of a hospital requiring considerable human resources and expenditure from hospital budget. However, Operation Theater is underutilized and lies idle at times. Many patients who are called for operation from waiting list are not operated upon. A significant amount of work needs to be undertaken to prepare the patient for a surgical procedure. This includes the patient notes being written on the day of admission, the consultant taking the time to review the notes, operation theater staff ensuring the correct surgical instruments are available, ward staff preparing the ward for the patient, secretarial staff preparing theatre lists, the patient preparing self for admission to hospital, and preparations for postoperative care.

Last minute cancellations result in inefficient use of resources, not in the interests of the patient or the hospital, and result in lost capacity. The reported incidence of cancellation in different hospitals ranges from 10% to 40%. The causes of cancellation of elective surgical procedures are multifactorial and they tend to vary from one hospital to another (7).

Unexpected operating room cancellations are traditionally divided into avoidable cancellations (e.g., scheduling errors, equipment shortages, and cancellation due to inadequate preoperative evaluation) and unavoidable cancellations (e.g., emergency case superseding the elective schedule, unexpected changes in the patient's medical status, or patient nonappearance). The most common factor which has led to cancellation is lack of OR time (7).

Increasing patient satisfaction through efficient practice is an appropriate objective of a health care system. A high cancellation rate for elective surgical procedures makes it difficult to accomplish this. Cancellation reduces operating room efficiency and increases costs (8).

However, different definitions of cancellation exist in the international literature. Some authors define ‘cancellation’ as only those procedures that were cancelled on the day on which surgery was scheduled, whereas others also include those that were cancelled on the previous day. The Modernization Agency Theatre Programme (National Health Service (NHS), UK) appears to define cancellations as those that occur after the patient has been notified of operation date.

In definitions used by a number of reports, cancellations are considered to be any operation that appears in the definitive schedule list that ultimately is not performed. Some other study group reasons for cancellation into relatively broad categories, while others simply list causes without grouping them. In yet other studies, the underlying decision to cancel is explored (8).

1.2:STATEMENT OF THE PROBLEM

Elective case cancellation on the planned day of surgery is common problem in hospitals which harms patients and leads to resource wastes that increases health care costs(3).

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 significant due to prolonged hospitalization and high cost of health care(7).

Cancellations of surgical procedures can result in inefficient use of hospital resources and loss of hospital income. The most damaging cancellations with regard to inefficient and costly use of medical resources are cancellations that occur after the patient has been prepared for the operating room. Reasons for cancellations vary, depending on the patient population, the type of surgery, and the adequacy of hospital administrative procedures (9).

Cancellation of an elective surgery increases the patient's stay in the hospital and associatedinconvenience. It leads to waste of time for the surgeon and other support staff as well as underutilization of operation theatre (10).

Surgery cancellations are undesirable in hospital settings as they increase costs, reduce productivity and efficiency, increase waiting lists, and directly affect the patient. Considerable resources are invested in maintaining operating theatres, and having surgeons and theatre staff available on an agreed schedule. In spite of this, the cancellation rate of elective surgeries is high, especially in the public sector. Cancellations can significantly inconvenience patients and their families. It is also reported that patients may suffer psychological stress, and/or financial hardships. Accordingly, cancellations are stressful and costly, with a high level of emotional

involvement before surgery (11).

CHAPTER TWO

2.1: LITERATURE REVIEW

In a hospital, the operating theatre (OT) is considered to be the heart of the technical platform that provides basis for an effective healthcare framework. It requires considerable human power and finance in order to deliver the best results in an efficient manner. Though, all major hospitals make substantial investment in ensuring the on time availability of surgeons and theatre staff , a major problem that remain prevalent in all hospitals is the cancellation of operation at an last minute. The situation leads to the underutilization and inconvenience of the operation theatres. In addition to it, cancellation of planned operations also establishes the inefficiency of management. Wastage of resources and inefficient use of operation theatres is highly attributed to the late cancellation of scheduled operations. Last minute cancellation provides consequences not only for hospitals but it also affect patient interests (13).

A one study conducted in Mashhad , Iran, of 16512 operations scheduled during 2013, 329 cases (1.99 percent) were canceled. The reason of cancellation was not mentioned in (28.6 percent) of cases. Other reasons of operations cancellation included, in the order of importance, high-risk underlying disease (22.5%), medical advice ignorance from the patient's behalf (10.6%), change in clinical status (7.9%), prolongation of previous operations (7%), patient's dissatisfaction (5.8%), Patients' incomplete Nil Per Os (NPO) time (5.5%), inadequate equipment (4.6%), lack of lab tests and consultations (2.7%), diagnosis change (2.4%), surgeon's absence (1.8%), and incomplete admission documents (0.6%)(13)

In another prospective research done in India 1590 patients were scheduled for elective surgical procedures in 458 operation rooms during the study period. 47.7% patients were male and rest being females. 28% of the total surgical procedures were planned laparoscopically. From 1590, 482 (30.3 %) patients were cancelled on the day of surgery. 288 (59.7%) were cancelled due to lack of availability of theatre time; 52 (10.8%) were cancelled because of medical reasons and 78 (16.2%) did not turn up on the day of surgery. In 26 (5.4%) patients, surgery was cancelled by surgeons due to a change in the surgical plan; 18(3.7%) were cancelled because of administrative reasons, 20 (4.2%) patients were postponed because of miscellaneous reasons (13).

A retrospective study done in Finland from 1 July 2009 to 30 June 2011, reportedthat a total of 12,205patients were scheduled for surgery, and 551 (4.5%) cases were canceled. The most common surgical specialty was orthopedic (31.8%), followed by gastroenterology (15.2%), ORL (13.6%), and gynecology (11.1%) The type of surgical specialty had significant effect on the frequency of cancelations ($p < 0.001$). Cancelations were most common in hand surgery (8.2% of all hand surgery patients), followed by orthopedic (5.4%), pediatric (5.1%), and ORL surgery (5.0%). On the contrary, of 122

scheduled operations for endocrinological surgery, none were canceled.Between the two most common types of surgery, orthopedic surgery had more cancelations (5.4%) than gastroenterological surgery (3.8%) (14).

ThisFinnish study divides reasons for cancelation into three categories: patient, hospital, and staff-relatedissues. Most of the cancelations were due to patient-related issues 72.4%, hospital-related issues 19.8% and staff-related issues 7.8%. Three most common reasons for cancelation covered 60.3% of all cancelations (308/511 cases). The most common reason was operation no longer being necessary (143 cases, 26% of all cancelations, and 1.2% of all patients). The second most common reason was patient being unfit for operation (86 cases, 15.6% of all cancelations, 0.7% of all patients). Other reasons were emergency operation prioritized (9.2%, 51 cases), prolonged previous operation (6.9%, 38 cases), and lack of surgeon (6.2%, 34 cases) (14).

A prospective survey was conducted in UK Royal Glamorgan Hospital over a 12-month periodto identify cancelled day case and in-patient elective operations. A dedicated nurse practitioner was employed for this purpose, ensuring that the reasons for cancellation and the timing in relation to surgery were identified. The reasons for cancellation were grouped into patient-related reasons, hospital clinical reasons and hospital non-clinical reasons. In total, 13,455 operations were undertaken during the research period and 1,916 (14%) cancellations were recorded. The common reasons for cancellation were inconvenient appointment (18.5%), list over-running (16%), the patients thought that they were unfit for surgery (12.2%) and emergencies and trauma (9.4 %) (15).

One of the study conducted in Hong Kong Hospital on 6234 scheduled cases, 476 werecancelled, which yielded a point prevalence of 7.6%. The highest number of cancellations occurred in patients scheduled for major general surgical procedures (n=94, 20%), major urological procedures (n=64, 13%), major orthopedic surgery (n=38, 8%), and ultra-major cardiothoracic surgery (n=29, 6%). The most common category for cancellation was facility(73%), followed by work-up (17%), patient (10%), and surgeon (1%). No available operatingroom time due to overrun of the previous surgery was the most common reason for case cancellation (n=310) (16).

In a Study conducted in kingdom of Saudi Arabia, a total of 2480 scheduled cases underwent elective surgical procedures. Of those 189 cases were cancelled (7.6%). The highest number of cancellation occurred in the general surgical service (28%) and the least (3.1%) occurred in neurosurgery. There were many reasons recorded for cancellation of surgeries, the most common was the no show up reason (32.5%). The least cause of cancellations was due to improper scheduling and acute illness (0.5%). The highest cancellation among different surgery subspecialties was for general surgery (28%), followed by orthopedic surgery (14.8%), plastic surgery (13.7%), pediatric surgery (13%), gynecology surgery (10.5%), and urology surgery (10%). The least cancellations were found among vascular surgery and neurosurgery sections (3.7% and 3.1% consequently) (17).

Another Saudi Arabian study on reasons for cancellation of elective cardiac surgery at Prince Sultan Cardiac Centre, a total number of cardiac surgical patients including pediatric and adult during a period from June 2008 to May 2009 were 2191. Out of those, 1681 cases were done during the study period, 510 (23.27%) cases were cancelled during the study period. The operation theatre was functional for 331 days during the study period. Cancellations done by the surgeons were 34% while the patient's related cancellations were 32%. The administrative issues contributed to 34% in overall cancellation and anesthetists related cancellation were 0 % (18).

In a retrospective study done in Moradabad, India, Scheduled elective general surgical procedures were reviewed from theatre records from June 2009 to May 2010. A total of 3618 surgeries were scheduled during the study period. Cancellations occurred in 246 (6.8%) cases. The reasons for cancellation were grouped into patient related, surgeon related, work-up related and administrative related. The most common category for cancellations was surgeon related 106 (44.1%), followed by administrative 71 (29.5%), workup related 39 (16.2%), patient related 24 (10%). Overall, the most common reason for on the day cancellations in their study was the lack of availability of theatre time, (or time constraints) which in turn was because of overrun of previous surgery and intentional overbooking of the OR list (19)

In study done in Abbottabad total number of general surgical operations performed form July 2006 to June 2007 was 2820. 3756 patients were scheduled for surgery during this study period. The operation theatre was functional for 285 days during the study period resulting in 9.8 cases per day. 936 (25%) operations were cancelled in the hospital. 338 (36%) operations were cancelled due to insufficient operating time. 296 (31.6%) were cancelled due to medical reasons. Shortage of beds resulted in cancellation of 152(16.2%) operations. The anesthesia provider cancelled the operations in 399 (43%) and surgeons in 367 (39%) patients. 170(18%) operations were cancelled due to organizational reasons (20).

From the total 455 surgical operations booked for surgery during the study period of three months in Pakistan Karachi civil hospital 33 operative days were analyzed, out of them; one day full list cancelled due to law and order situation in the city (strike). The average cases per list scheduled were 14.2 cases. Out of total 455 booked operations, 97 (21%) operations were cancelled. As most of cancelled Patients did not come on the scheduled day of operation for cases under local anesthesia; noncompliance of patient has been identified as the major contributor for operations cancellation followed by lack of operating theatre time (21)

In a retrospective evaluation of the rate of surgery cancellation in 25 hospitals of Makkah region, the Kingdom of Saudi Arabia, which was performed during the period of January - December 2013, there were total 16211 scheduled surgery cases in 15 different surgical specialties and 1238(7.6%) cases were cancelled. Out of total cancelled cases, Orthopedics' cases were 419(33.9%), general surgery 340(27.5%), obstetrics 95(7.7%), ENT 65(5.2%), ophthalmology 59(4.8%), and others. Total numbers of operative cases cancelled were 1238. There were 27 different reasons for cancellation of the operations, and the causes for cancellations were categorized as patients related, 42.81%, facility related 20.03%, because of improper work-up 9.45%, linked with anesthesia1.45%, related with surgeons 7.19%. The most common single reason for operation cancellation was failure of the patients to attend 20.76%,followed by from surgeon 6.95%, blood was not arranged 5.57%, because of other medical conditions 5.17%, on patients request 4.77%, for improper scheduling 4.84%, lack of equipment 4.20%and others (22).

A prospective study was undertaken on cancellation of scheduled surgery in the general surgery service at one hospital in Ouagadougou, Burkina Faso. A total of 103 surgeries were scheduled for patients with an average age of 41.1 years. Abdominal surgery (36.9%) dominated and 63.1% (n = 65) of the operations were scheduled. Some 36.9% (n = 38) of interventions were delayed, of which 9.7% (n = 10) were definitively cancelled and 27.2% (n = 28) were carried forward. Half of the cancellations (47.4%) were related to equipment and 31.6% related to patient factors or caregivers (15.8%). Hospital-related cancellation accounted for 63.9%. Cancellation was avoidable in 68.5% of cases. A financial cause was

relevant for 16.6% (n = 6) and 2.6% of cancellations were due to a 'long preceding intervention'. Surgery was delayed once (82.1%), twice (14.3%) or three times (3.6%) for some patients (23)

In a study done in our neighbor Sudan, 1724 patients were scheduled for elective surgical procedures during the study period; 106 (6.0%) of these were cancelled on the day of surgery. The causes were coexisting medical problems 38.7%, administrative 25.5%, patient related 18.8%, surgical 12.2%, and anesthesia related 2.8%. Out of the medical problems which led to cancellation were commonly: acute cardiac causes 17.9% and acute respiratory causes 9.4%. From the administrative causes 17.9% were due to lack of theatre time. Out of the patient related causes 16.9% were because the patient failed to admit. According to the age group cancellations were mostly within the 61– 70 year age group (31.1%) & 51 – 60 year age group (25.4%). The cancellations of major, intermediate & minor surgeries were 58.5%, 18.9%, 22.6 % respectively (24).

An Australian Prospective survey to establish the rate of and reasons for cancellations of surgery on the scheduled day included 7913 theatre sessions which were scheduled by 133 surgeons ; 941 of these (11.9%) were cancelled on the day, including 724 of 5472 (13.2%) elective procedures on working weekdays. there were an average of 5.2 on-the-day surgery cancellations per day. Main reasons for cancellation were: no theatre time due to over-run of previous surgery (18.7%); no postoperative bed (18.1%); cancelled by patient (17.5%); and change in patient clinical status (17.1%). Procedural reasons (including patient not ready, no surgeon, list error, administrative cause, and communication failure) totaled 21.0%. Surgery most likely to be cancelled was ear, nose and throat surgery (19.6%), followed by cardiothoracic surgery (15.8%). Least likely were gynecological oncology, neurosurgery, transplant surgery and gynecology and obstetrics surgery. they estimated that 60% of elective procedures that were cancelled on the day were potentially avoidable (25).

The study at Aga Kahn, Pakistan, and University shows a total of 810 patients were scheduled tohave surgeries in the main operating rooms. In these 810 patients 55 cancellations (6.7%) were noted. Patient related factors accounted for 32 (58%) cancellations. Further break-up of this group showed that 'no-shows' were 40%, patient refusals 3.6%, financial constraints 3.6% and failure to follow preoperative instructions 5.4%. Acute illnesses of the patients were a cause in 5.4% of the cancelled cases. Anesthesia related factors accounted for 12 (22%) cancellations. Cancellations done by surgeons accounted for 10 (18.2%) of the total cancellations. Surgery related factors were unplanned booking (5.45%), patient requiring further surgical workup (3.6%), surgeon busy in emergency surgery (3.6%) and surgeon's non availability due to otherreasons (1.8%) (26).

A prospective audit of the operation theatre list over a period of eight months (January 1, 2013-August 30, 2013) in Beirut, Lebanon, shows that for that given study period, 5929 elective surgeries were performed, of which 261 cases (4.4 %) were cancelled on the day of surgery. 187 cases (or 71.6 %) were judged as potentially avoidable cancellations versus 74(28.4 %) that were judged as unavoidable. Of the 187 potentially avoidable cancellations, lack of financial clearance, incomplete medical evaluation, patient not showing up for surgery, and OR behind schedule accounted for almost 80 % of the causes (27)

In South Africa a retrospective evaluation was done on why is surgery canceled Over 12 months, during which 5,786 operations were complete (2,800 urgent and 2,986 elective), cancellations occurred in 333 (5.6%) of cases. The most common reason was lack of medical clearance and patient preparation (65.1%). More decisions for postponement came from surgeons (25.8%) than from anesthetists' (4.5%). Other reasons for postponement of surgery were: lack or failure of instruments (2.8%), and cancelled by patients (1.8%). No operations were cancelled because of lack of ICU beds (28).

The study done in another African country, Tanzania shows that a total of 3,064 patients were scheduled to undergo elective surgical procedures. Of these, 2,420 (79.0%) patients were operated on while the remaining 644(21%) patients' procedures were cancelled. The ages of patients whose operation were cancelled ranged from 1 month to 86 years. There were 424 (65.8%) males and females were 220 (34.2%) with a male to female ratio of 1.9:1. General surgery had the highest number of patients booked for operation (24.7%) followed by orthopedic surgery in 21.8% of patients. Cardiothoracic surgery and Ophthalmology had the least number with 3.2% and 2.2% of patients booked for operations respectively (10).

During the study at Khartoum, Sudan 2750 patients were scheduled for general surgical operations, 2460 (89.5%) patients were operated on their planned date. A total of 290 (10.6%) operations were cancelled. The mean age was 41.2 ± 16.5 years, with female to male ratio of 1.2:1. There were many reasons for postponement of surgery; the main reasons were categorized into medical related, patient related, administrative, inadequate preparations of patients and other reasons, accounting for 30.3%, 24.9%, 20.3%, 19.5% and 4.6% respectively. The major three causes for cancellation in the study were; failure of the patients to attend, uncontrolled hypertension and overloaded schedule. These were seen in 57 (19.7%), 35 (12.1%) and 32 (11.0%) patients respectively. Most of the reasons (76.9%) were potentially avoidable (31).

A total of 1015 patients were scheduled at a University Teaching Hospital, Enugu, Nigeria for elective surgery during the study period while 284 (28%) of the patients had their surgerycancelled for various reasons. The two most frequent reasons for cancellation were insufficienttheatre time (24.30%) and booked patients not showing up on the day of surgery (21.13%). Miscellaneous (6.69%) causes of cancellation in this audit included patient not fasted, patient menstruating, or non availability of sterile surgical instrument pack. General surgery had the highest number (352) of booked cases and also the highest number, 103 (36.27%) of cancelled cases. However, pediatric surgery with the 4th largest number (92) of booked cases had the highest (44.57%) cancellation rate. The most common reason for cancellation of elective pediatric surgical cases, was insufficient theatre time while for orthopedic surgery it was failure of patients to show up for booked surgery (30).

During the study 2750 patients were scheduled for general surgical operations, 2460 (89.5%) patients were operated on their planned date. A total of 290 (10.6%) operations were cancelled. The mean age was 41.2 ± 16.5 years, with female to male ratio of 1.2:1. There were manyreasons for postponement of surgery; the main reasons were categorized into medical related, patient related, administrative, inadequate preparations of patients and other reasons, accounting for 30.3%, 24.9%, 20.3%, 19.5% and 4.6% respectively. The major three causes for cancellation in the study were; failure of the patients to attend, uncontrolled hypertension and overloadedschedule. These were seen in 57 (19.7%), 35 (12.1%) and 32 (11.0%) patients respectively. Most of the reasons (76.9%) were potentially avoidable (31).

A study done in 2014 at one of our countries' University hospital, Jimma University, shows that 1438 patients were scheduled to undergo elective surgical procedures and of these 1107 (77.0%) patients were operated on the intended date, while the remaining331(23%) cases were cancelled. From the total number of patents whose operation was cancelled general surgery takes the majority 198 (23%) followed by orthopedic surgery 391 (20%). Common reasons for elective surgical patient cancelation is inappropriate scheduling (33.5%) followed by lack of sterile drape (23.5%) and in appropriate patient preparation (11.8%) (32)

2.2: SIGNIFICANCE OF THE STUDY

The aim of this study was to determine the prevalence of elective case cancellations and identify the reasonsat the major OR of TASH. Study on this topic was important and relevant because researches and reviews areinadequate especially in our country.

Identification of the prevalence and especially the reasons for elective surgical case cancellation will enable the management body to make appropriate strategies and thus, make better use of its operation theatre facility.

So this research may add to the few available materials and increase the awareness and the sensitivity of the problem to health professionals, hospital managements and ministry of health for better management of the problem at any level. In addition to this, the result of the study will motivate and simulate for more detailed research.

CHAPTER THREE:

OBJECTIVES

3.1 General objectives

Was to determine the point prevalence of elective surgical case cancellations and the reasons at the major OR ofTikurAnbessaspecialized hospital from June 1 to October 31, 2017 G.C.

3.2 Specific objectives

1) Was to determine prevalence of elective surgical case cancellation among elective surgical patientsat the major OR ofTikurAnbessa specialized hospital.

2) Was to assess the reasons and factors associated with elective surgical case cancellation among elective surgical patients at the major OR ofTikurAnbessaspecialized hospital.

CHAPTER FOUR:

METHODOLOGY

4.1 Study area and period

The study took place in Addis Ababa, TikurAnbessaSpesialized Hospital. Addis Ababa is achartered city; having three layers of government: city government at the top, 10 sub city administrations in the middle, and 116 wereda administrations at the bottom. The total land area of the city of Addis is 54,000 hectares and located between 8055' and 9005' North Latitude and between 38040' and 38050' East Longitude with more than 3 million population(33).

TikurAnbessa Specialized hospital is Ethiopia's largest general public hospital and one of University Hospitals in the country. The hospital provides a tertiary level referral treatment and is open 24 hours for emergency services. The hospital is administered by Addis Ababa University and is the largest and oldest teaching hospital among all in Ethiopia providing teaching for about 300 medical students and 350 Residents every year. TikurAnbessa Specialized hospital offers diagnosis and treatment for approximately 370,000- 400,000 patients a year. The hospital has 800 beds, with 130 specialists, 50 non-teaching doctors. The emergency department sees around 80,000 patients a year (33).

Around 4,450 cases operated in one year in all operation theatres. The study was conducted at the major OR ofTASH from May 1 to October 31, 2017 G.C

4.2 Study design

A cross sectional quantitative survey was conducted by structured questionnaireto determine the point prevalence of elective surgical case cancellations and the reasons for these cancellationsat the major OR ofTASH.

4.3 Source population

The study was conducted on all surgical cases that were scheduled at the major OR for elective surgery during the study duration.

4.4Study population

All patients scheduled for different elective surgical procedures duringthe study period at the major OR were included.

4.4.1 Exclusion criteria:cases listed for elective operation at rehabilitation center and obstetrics OR.

4.5 variables

4.5.1Independent variables

- age
- Sex
- Surgical specialty(unit)
- Reasons for cancellation

    1. Patients related
    2. Medical related
    3. Management related
    4. Shortage of time
    5. Staff related
    6. Incomplete investigation

4.5.2 Dependent variable

- Elective surgical Case cancellation

4.6Data collection

The data was collected by reviewing the posted daily schedule lists for every elective surgery at the major OR usinga standard data collection sheet with a pre tested structured questionnaire containing basic socio-demographic variables and presumed reasons/risk factors for cancellation.

Reasons for cancellation were determined by interviewing the operation theatre staffs (surgeons or anesthetists, nurses...) or patients themselves when necessary and wasimmediately recorded on the predesigned questionnaire by the data collector.

4.7Data analysis

The collected Data was checked for consistency of information, coded, cleaned and analyzed anonymously using SPSS software. Results were presented using tables and graphs.

4.8Operational definitions.

- **Elective surgery**- non-emergency surgery which is medically necessary, but which can be delayed for at least 24 hours
- **Case cancellation**-a planned operation that is not done on the day of the schedule time.

4.9Dissemination of findings

The findings of the study was submitted to the supervisor; Addis Ababa University College of health science, and other concerned bodies as a partial fulfillment of the requirement for anesthesiology specialty certificate.

In addition, the result will be shared with TASH and also the manuscript of the research will be prepared and submitted to appropriate journals for possible publication and copy to library of Health science, and department of anesthesiology and for each individual specialty at TASH.

4.10Ethical consideration

After getting proposal approval by the department of anesthesiology institutional review board, ethical clearance was obtained from department of anesthesiology.

Following ethical clearance, permission to conduct the research was obtained from the medical director and OR directorate of the Hospital.

For all activities carried out in the OR, Verbal consent was taken after explaining about the study and its significance.

The information received was confidential and there wasn't any need to write the patient's names; instead medical record number was used to ensure confidentiality.

The data collectors were oriented by the principal investigator and collected the data properly. They got incentives for collecting the data.

4.11Limitations of the study

1) Limited literatures related to this research in the study area.

2)Data collectors might not fill the questionnaire exactly.

3) Difficulty to generate cause effect relationship between dependent and independent variables, since it is a cross sectional study.

CHAPTER 5:

RESULTS

For the given study period, 1904 elective surgeries were scheduled to be performedat the major OR, Of all the patients, 844 were women (44.3%) and 1060 were men (55.7%). From the study 1277 (67.1%) were operated on the day of that intended surgery and 627 (32.9%) were cancelled. There was an average of 6.1 cancellations per day. Male to female ratio for the total scheduled cases was 1.26:1.

Male population of the schedules has slightly higher cancellation rate of 51.2%, making male to female ratio of cancellation at 1.06:1.

Table 1: Scheduled surgical elective cases and cancellations according to demographic distribution at major OR of TASH from June 1 to October 31 2017 G.C.

Socio-demographic data		Total schedule for Surgery (%)	Surgery cancelled (%)
Age (yrs)	Under 1	129 (6.8)	25 (4.0)
	1-9	270 (14.2)	55 (8.8)
	10-19	184 (9.6)	64 (10.2)
	20-29	234 (12.3)	78 (12.4)
	30-39	302 (15.9)	96 (15.3)
	40-49	227 (11.9)	89 (14.2)
	50-59	276 (14.5)	96 (15.3)
	60-69	147 (7.7)	67 (10.7)
	Above 70	135 (7.1)	57 (9.1)
Gender	Male	1060 (55.7)	321 (51.7)
	Female	844 (44.3)	303 (48.3)

Total	1904 (100)	627 (100)	

The average age of patients whose operations were canceled was 37 years and their age ranged from 33 days to 88 years.

From the table the most frequently scheduled age group for surgery was 30-39years, while the same age group along with the age group of 50-59years (15.3% each) contributed the highest canceled age group followed closely by the age groups of 40-49years (14.2%).

Table 2: Distribution of scheduled elective surgical cases and cancelled cases in each department/specialty at the major OR of TASH from June 1 to October 31 2017 G.C

Department/unit	Total cases	Cancelled cases	Cancellation rate (%)	Contribution to total cancellation (%)
Neurosurgery	318	172	54.1	27.4
General surgery	327	102	31.2	16.3
Cardiothoracic surgery	213	92	43.2	14.7
Urology surgery	409	86	21.0	13.7
Pediatrics surgery	387	65	16.8	10.4
Gynecology surgery	146	61	41.8	9.7
ENT surgery	104	49	47.1	7.8
Total	1904	627		100.0

Surgery most likely to be cancelled was neurosurgery (54.1%), followed by ENT surgery (47.1%) and cardiothoracic surgery (43.2%). The least likely were pediatrics surgery (16.8%) and urology surgery (21.0%).

Neurosurgery contributed the highest (27.4%) to the total cancellation followed by general surgery (16.3%), while ENT surgery contributed the least (7.8%).

For those cases cancelled the decision was made before entering into the OR in 96.3% (604/627).

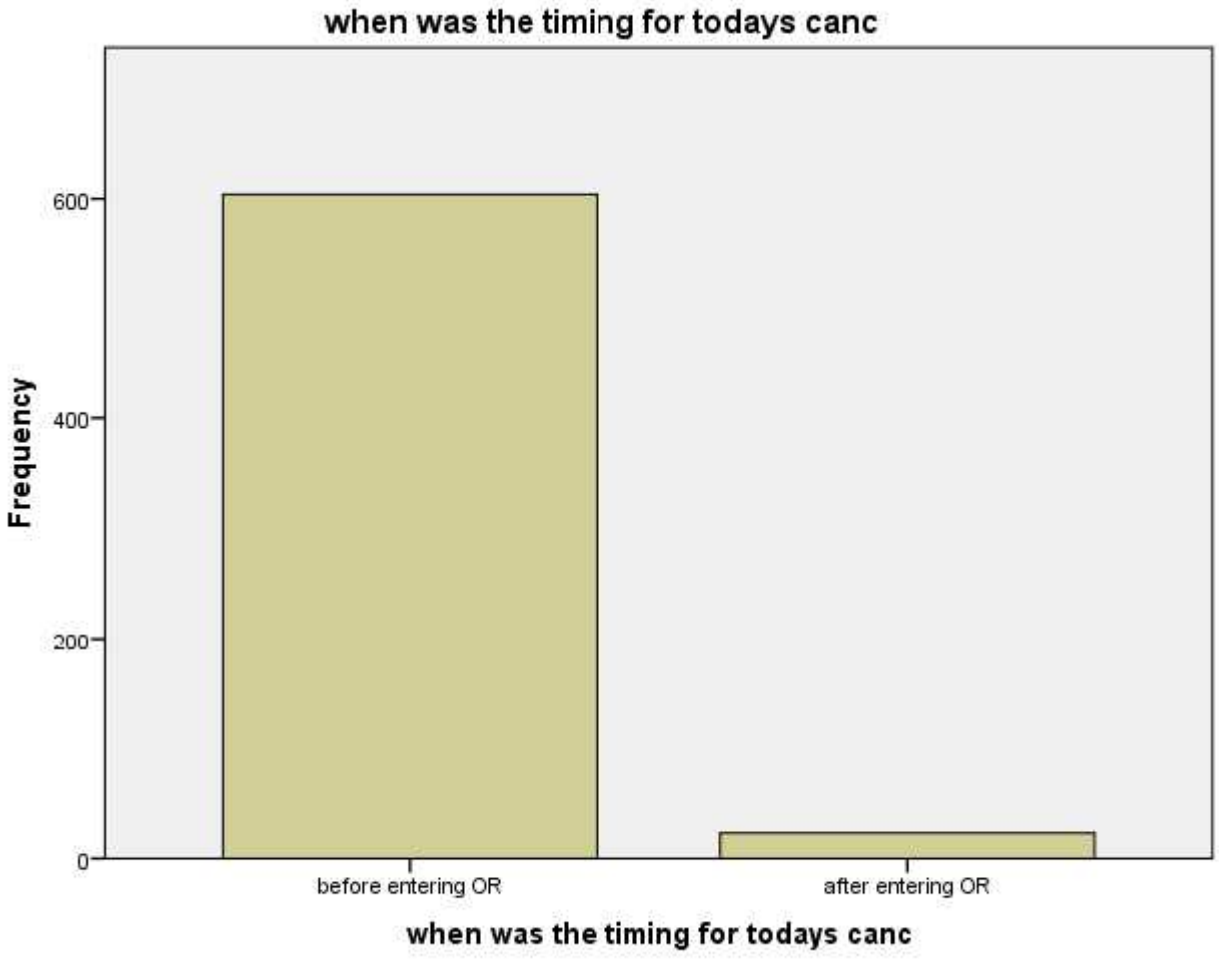

Figure 1: Timing of scheduled elective surgical case cancellation (before or after entering the OR) at the major OR of TASH from June 1 to October 31 2017 G.C

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Table 3: Scheduled elective surgical case cancellation and the reasons for elective case cancellation distribution at the major OR of TASH from June 1 to October 31 2017 G.C

Category of the reason	Reasons for cancellation	Number of cases (%)	Total number (%)
Patient related	Patient refused or postponed	8 (1.3)	27 (4.3)
	Patient did not show	3 (0.5)	
	Patient not fasting	10 (1.6)	
	Patients financial shortage	2 (0.3)	
	Patient on anticoagulant	1 (0.2)	
	Other	3 (0.5)	
Management/facility related	No UCU bed	54 (8.6)	288 (45.9)
	Blood not available	200 (31.9)	
	No equipment available	7 (1.1)	
	No water	27 (4.3)	
	Others	0 (0)	
Time related	Over scheduling	118 (18.8)	197 (31.4)
	Prior case prolonged	70 (11.2)	
	Emergency case priority	9 (1.4)	
Staff related	Surgeon didn't show/went in between	53 (8.5)	53 (8.5)
	Anesthesia provider not available	0 (0)	
	Nursing staff	0 (0)	
	Other staff members	0 (0)	
Workup/medical condition	Uncontrolled hypertension	9 (1.4)	61 (9.7)
	Uncontrolled DM	2 (0.3)	
	IHD	0 (0)	
	Inter-current illness	15 (2.4)	
	Abnormal investigations/ workup needed	31 (4.9)	

	URTI	3 (0.5)	
	Uncontrolled thyroid disease	1 (0.2)	
Unexpected emergeny	Failed intubation/spinal	1 (0.2)	1 (0.2)
	Cardiac arrest on table	0 (0)	
	Aspiration on table	0 (0)	
Total		627 (100)	627 (100)

As shown in table 3, the most common reason for DOS cancellation was management/facilty related which accounted for 288 cancelled cases (or 45.9 % of all elective surgical cancellations). This was followed by shortage of time (n= 197 or 31.4 %), medical/workup related (n= 61 or 9.7 %), staff related (n= 53 or 8.5 %), patient related (n= 27 or 4.3 %), and being the least reason unexpected emergency accounted (n= 1 or 0.2 %).

The most common single cancellation reason was “Blood not available” (n= 200) followed by “over scheduling of cases“(n= 118).

The highest frequent reasons for shortage of time were over scheduling of cases (n=118 or 59.9 %) and the least was emergency priority (9 cases or 4.6 %).

Lack of prepared blood (n=200 or 69.4%) and unavailability of ICU/MV (n= 54 or 18.8%) were the two common management/facility related reasons for elective surgical case cancellations

Thirty cases were canceled by medical conditions 30/627(4.9%), being inter-current AFI’s excluding URTI the highest 15/30 (50.0%) reason.

The need for workup/investigation by the anesthesia provider or surgeon contributed 4.9% (31 cases) for cancellation.

Patient not NPO was the highest patient related reason 10/27(37.0%) for cancellation.

Table 4: Distribution of more than once scheduled elective surgical case cancellation in each department/specialty at the major OR of TASH from June 1 to October 31 2017 G.C

Department/specialty	Cancellations			
	Only once (%)	Twice (%)	Three times (%)	More than three times (%)
Neurosurgery	149	15	7	1
General surgery	93	7	2	0
Cardiothoracic surgery	85	4	3	0
Urology surgery	82	4	0	0
Pediatrics surgery	62	3	0	0
ENT surgery	47	2	0	0
Gynecology surgery	57	4	0	0
Total	575 (91.7)	39 (6.2)	12 (1.9)	1 (0.2)

Of these 627 patients who experienced at least one on-the-day cancellation, 39 (6.2%) of them experienced another cancellation, 12 (1.9%) of them experienced another two more cancellations, and one patient (0.2%) encountered a total of four cancellations.

Neurosurgery was the largest contributor for all frequencies of cancellations.

CHAPTER 6:

DISCUSSION

Cancellation of elective surgical operations in hospitals is a significant problem and a world-wide problem with reported incidences ranging from less than 1 % to over 23 %.

It has many undesirable consequences and even the rate of case cancellation is considered an effective reflector of OR facility utilization. Macario, (2006) described that <5% case cancellation rate shows optimal utilization of the OR facilities.

Cancellations are a major drain on health resources, increases theatre costs, results in wasted operating room time and decreases efficiency. An efficient surgical service should have a low rate of cancellation.

Elective surgical case cancellations decrease operation room efficiency and increases patients waiting for operation and cost (29) decrease patient satisfaction, waste medical resources, and undermine the morale of medical personnel(5).

Present study found cancelation rate 32.9% (627/1904) at the major OR of TASH. These results are compatible with very few and higher with several other studies, but hardly lower. It is high compared to the studies conducted at Tanzania (21%), South Africa (5.6%) and Sudan (10.5%), (7,28,29,). It is even way higher than a study at Jimma University 23% (32),although TASH is being considered as better tertiary teaching hospital in our country by many.

Rate of elective surgical case cancellation in developing country ranges from 10-40% (7) and developed country 0.21-26% (5). This high cancellation rate may be because of the scarce/unavailable blood and blood products which almost stayed throughout the second half of the study period.

From 1904 cases 1060(55.7%) were male and 844(44.3%) were female. Male to female ratio was 1.26:1. Contribution to the cancellation for male and female were 51.7% and 48.3% respectively with a male to female ratio of 1.07:1. From the canceled cases male was high 68.8% and female 31.2% in other study done in Tanzania male to female ratio were1.9:1 with 65.8% and 34.2% respectively (7).

The average age of patients whose operations were canceled was 37 years and their age ranged from 33 days to 88 years old but in Sudan mean age was 41.2±16.5 years (29).

The most frequently scheduled age group for surgery was 30-39years (n=302 or 15.9%), while the age group of 60-69years constituted the highest cancellation rate (45.6%) age group followed closely by the age groups of above 70 years (42.2%) and less frequent cancellation rate were the age group of 1-9years

(20.4%). In comparison, Spain cancellations were more common in patients aged 0–10 years (13%, n = 202), followed by those aged 21–30 years (9%, n = 255). Cancellations were less frequent in older age groups (71–80 years, 5%, n = 378; 61–70 years 6%, n = 438) (21). But in Sudan the highest canceled group was 61-70 years old 31.1% followed by 51-60 years old group 25.4% (24).

Contribution to total cancellation (627 cases) was highest with neurosurgery 172(27.4%), followed by general surgery 102(16.3%), cardiothoracic surgery 92(14.7%) and the least was ENT surgery 49(7.8%). This seems to contradict a study in Saudi Arabia where neurosurgery contributed least (3.1%) and general surgery was highest canceled 28% (18), but another study in the same country found out ENT (5.2%) the least (22).

Most common reasons for cancellation was management/facility and shortage of time related 288(45.9%) and 197(31.4%) respectively almost similar compared with the study in Spain Shortage of time 36.6% (21) but in UK patient related was high (51%) (16). In one study in Hong Kong the most common reason for cancellation was facility (73%) (17). Over scheduling was the most common reason for shortage of time 118(59.9%) followed by case prolonged prior case 70(35.5%).

Management related reason accounts 45.9% for cancellation ,the commonest were unavailable/failed to prepare cross matched blood 200(69.4%) followed by ICU/MV not available 54(18.8%) significantly higer compared to 20.03% at Saudi Arabia(22) and 25.5% at Sudan(18) and even more higher compared to 4.2% in India(14). Unlike ours which was 54 cases, one South African study reported no patient was canceled because of ICU bed shortage (28).

Cancelation by medical staffs were account 8.5% (all by surgeons), which is roughly similar with the study in Finland 7.8% (15), but low compared to 34% in Saudi Arabia (19) and high compared to the study in India(3.7%)(14).

Patient related reasons for cancellation were 27(4.3%) which is low compared to UK Glamorgan hospital 51 %(16), in Finland 72.4 %(15), in Saudi Arabia (32%) and in china 10 %(17).

Medical related reasons had accounted for 4.8% of the cancellation which is low compared to Sudan 38.7% (24) and in India 10.8%(14).

CHAPTER 7:

CONCLUSION AND RECOMMENDATION

7.1 CONCLUSION

Cancellation of elective surgical case on the scheduled day of surgery was high and was a significant problem.

Identifying and addressing the cause improves the efficiency of theatre facilities. Most of the reasons were management/facility related and shortage of time and workup/medical condition related were the third common reason.

It was known most of the reasons for cancellation were avoidable and can be prevented by employing various methods.

Case cancellations can be reduced by improving preoperative assessment, proper scheduling of cases and better interdepartmental coordination.

7.2 RECOMMENDATION

Implementation of patient preoperative assessment should be applied. A team approach ensuring presence of policies and procedures for improving and ensuring realistic scheduling of theatre lists, reducing time spent preparing and cleaning and better handling resources.

In order to enhance cost-effectiveness and efficiency; efforts should be made to prevent unnecessary postponement through careful planning aim at increasing operation theatre spaces and efficient utilization of few available hospital resources including that of the operating room, theatre facilities and valuable man power improving the scheduling and admission procedure is required for better use of hospital

The hospital management should find ways to sustainable supply of blood and blood products.

Monthly reports should be sent to Directorate director/operating room Director Teams to monitor causes of cancelled operation, taking into consideration the avoidable causes.

REFERENCES

1.Perroca MG, JericoMde C, Facundin SD. Surgery cancelling at a teaching hospital: implications for cost management. Rev Lat Am Enfermagem. 2007;15:1018–24

2.Seim AR, Fagerhaug T, Ryen SM, Curran P, Saether OD, Myhre HO, Sandberg WS. Causes of cancellations on the day of surgery at two major university hospitals.SurgInnov. 2009;16:173–80

3. Einar H. A new pathway for elective surgery to reduce cancellation rate.BMC health service research.2012, volume 12:154.

4. Lee A, Kerridge RK, Chui PT, Chiu CH, Gin T. Perioperative Systems as aquality model of perioperative medicine and surgical care. Health Policy.2011;102:214–22

5. Wei X. Dynamics of Elective Case Cancellation for Inpatient and Outpatient in an Academic Center.HHS public access.2013, May 13, 4(5):314.

6. EbirimL.N,Buowari D.Y and Ezike H.A. Causes of cancellation of elective surgical operations at a University Teaching Hospital. Journal of Medicine and Medical Sciences Vol. 3(5) pp. 297-301, May 2012

7. Chalya PL. Incidence causes and pattern of cancellation of Elective surgical operations in a University Teaching Hospital in the Lake Zone, Tanzania. African Health Science.Sep 2011, Volume 11, No 3.

8.González-Arévalo' J.and et ale. Causes for cancellation of elective surgical procedures in a Spanish general hospital, Journal of the association of Anesthetists of Great Britain and Ireland, May 2009,64(5):487-493

9. El Bushra D, MohamedM, MD etal,Cancellation of scheduled surgical operations on the day of surgery, Sudan medical journal,2008,8:1,2.

10. Ju-Hsin C. Case review analysis of operating room decisions to cancel surgery, BMC surgery 2014 July 23, 14:47.

11. Kari D. Reduced elective surgery cancellation, University Hospital of North Norway 2014

12. Dr. MasoodJ , Prof. Foad Ali M , Dr. Farhat J , Dr. Abdul K. Operations; cancellation on the intended day of surgery. Professional Med J 2014; 21(1): 001-004.

13.Hossein Ebrahimipour, ArashShirdel, Mohammad EsmaeilRahimi, MarziehMeraji, ElahehHooshmand.A Study on the Frequency and the Reasons for Cancellation of Surgical Operations in Khatam Hospital (Mashhad, Iran) in 2013, Patient Safety and Quality improvement journal, Vol. 2, No. 4

14. Rakesh G, AnjuR ,Poonam B, NishkarshG,andRaktima . Reasons for Cancellation of Cases on the Day of Surgery–A Prospective Study.IndianJoornal of Anesthesia.2009 Feb; 53(1).

15. LaisiJ,TohmoH,Keränen U. Surgery Cancelation on the Day of Surgery in Same-Day Admission in a Finnish Hospital,Scandinavian Journal of Surgery September 2013 vol. 102 no. 3 204-208

16. Sanjay P, Dodds A, Miller E, Arumugam PJ, Woodward A. Cancelled elective operations: an observational study from a district general hospital.US National Library of MedicineNational Institutes of Health 2007; 21(1):54-8.

17. CH Chiu, Anna Lee, PT Chui, Cancellation of elective operations on the day of intended surgery in a Hong Kong hospital: point prevalence and reasons, Hong Kong Med J. 2012; 18:5–10.

18. A El-Dawlatly, ATurkistani, AAldohayan, A Zubaidi, A Ahmed. Reasons of Cancellation of Elective Surgery in A Teaching Hospital. The Internet Journal of Anesthesiology. 2007 Volume 15, Number 2.

19.Nabeel S, Abdul R, Syed M Abbas. Reasons for cancellation of elective cardiac surgery at Prince Sultan Cardiac Centre, Saudi Arabia, Journal of the Saudi Heart Association.January 2012 Volume 24, Issue 1, Pages 29–34.

20. FarhanulHuda.A Retrospective Analysis of Reasons for Cancellation of Elective Surgery in a Teaching Hospital. International Journal of Scientific Study | May 2014 | Vol 2 | Issue 2

21. Arshad Z, Tariq M, Samson G, Sajjad A, Johar A. cancelled elective general surgical operations in ayub teaching hospital, J Ayub Med Coll Abbottabad 2007; 19(3):66.

22. Khalid O Dhafar et al. Cancellation of operations in Saudi Arabian hospitals: Frequency, reasons and suggestions for improvements, PAKISTAN JOURNAL OF MEDICAL RESEARCH · SEPTEMBER 2015, Pak J Med Sci 2015 Vol. 31 No. 5

23.MartinLankoandea, P Bonkoungoub, SIS Traorea, RAF Kaborea, E Ouangrec and P Pendeville. Cancellation of elective surgical procedures in the university teaching hospital center YalgadoOuedraogo in Burkina Faso: incidence, reasons and proposals for improvement. Southern African Journal of Anaesthesia and Analgesia

24. Gayathri H, Ayesha M, Cancellation of elective surgical procedures in the Genito-Urinary section of National Hospital of Sri Lanka – can we do better? May to August 2012.

25.William N Schofield, George L Rubin, Michael Piza, Ying Yin Lai, DoungkamolSindhusake, Michael R Fearnside and Peter L Klineberg. Cancellation of operations on the day of intended surgery at a major Australian referral hospital. Medical journal of Australia Volume 182 Number 12 20 June 2005

26.Tauseef A. MueenullahK.Fauzia K. Cancellation of surgery in patients attending the preoperative anaesthesia assessment clinic: a prospective audit, J Pak Med Assoc, August 2009, Vol. 59, No. 8

27.RolandKaddoum, RachaFadlallah, EvelineHitti, Fadi EL-Jardali and Ghada El Eid. Causes of cancellations on the day of surgery at a Tertiary Teaching Hospital. BMC Health Services Research (2016)

28. Chamsa,F.R.C.S,F.C.S(SA). Why is surgery cancelled? A retrospective evaluation, SAJS General surgery. AGUST 2008, VOL 46, NO.3:79.

29. Elrahman A. Magnitude of cancelled elective general surgical operations at Omdurman Teaching Hospital, 2012 – 2013, Sudan Med J 2014 August;50(2)

30. Ebirim L.N, Buowari D.Y and EzikeH.ACauses of cancellation of elective surgical operations at a University Teaching Hospital. Journal of Medicine and Medical Sciences Vol. 3(5) pp. 297-301, May 2012

31.Ahmed A , Aamir A, Mohayad A ,Magnitude of cancelled elective general surgical operations at Omdurman Teaching Hospital, 2012 – 2013, Sudan Med J 2014 August; 50(2)

32. Haile M, Desalegn N. Prospective Study of Proportions and Causes of Cancellation of Surgical Operations .2015, Int J Anesth Res. 3(2), 87-90.

33.Dr. AtalayAlem's inaugural professorial lecture entitled ‘My Professional Journey and Mental Health Research in Ethiopia’ gives on Tuesday July 17th, 2012

ANNEX I: QUESTIONNAIRE

DATA COLLECTION QUESTIONNAIRE,ADDIS ABABA UNIVERSITY COLLEGE OF HEALTH SCIENCE SCHOOL OF MEDICINE DEPARTMENT OF ANESTHESIOLOGY

This is a questioner to be filled by data collector and the main purpose of this questionnaire is to assess the prevalence of elective case cancellation and reasons for cancellation at the major OR on the day of the scheduled operation.

My name is _____ I am currently a resident in Addis Ababa university college of health sciences school of medicine department of Anesthesiology, who is now going to conduct survey.

The main objective of these study is _____which will be important to create recommendations to the identified problems which will be forwarded to the responsible body.

Your full cooperation and willingness to fill this questionnaire will have a magnificent impact on the success/failure to the study. Hence, I kindly request you to hold on to every item in the questionnaire. I would like to thank you in advance for your cooperation.

NB: PROCEED ONLY WITH CANCELLED CASES.

1. Identification.

1.1. Medical record no----------

1.2. Age ----------

1.3. Sex ----------

1.6. Surgical unit (specialty) ----------

1.4.Working Diagnosis ----------

1.5. Planned procedure----------

1.6. Case scheduled on number…….

1.7. How many days since admission to the hospital?.....

2. Was the operation previously cancelled?

A.YES

B. NO

2.1. When was the today's operation cancelled?

A. Before entering the OR

B. After entering the OR.

3. Factors for cancellation

3.1. Patient related

1. Uncontrolled /acute medical illnesses 2. Lack of important investigation3.Patientrefusal/request 4. Poor gut preparation5. Financialshortage 6. Absence from the OR 7. Patient not fasting8. Patient onanticoagulant 9. Other

3.1.1 Uncontrolled or acute medical illnesses

1. Increase blood pressure/uncontrolled Hypertension.2. UncontrolledDM 3.Uncontrolled asthma

4. Coagulopathy5. IHD 6.Uncontrolled Thyroiddisease 7.AFI8.URTI 9.Others----------

3.1.2 Lack of important investigation

1.Hematocrit2. Electrolytes3.LFT

4. PFT5. ECG6 RFT7.X-RAY/CT SCAN

3.2 Management related

1.Shortage of OR material 2.Power breakdown3.Lack of ICU bed or mechanical ventilator

4.Shortage of water supply 5.Blood not prepared 6.Lack of Oxygen source 7.Others……

3.3 staff related

1.Surgeon 2.Anesthesia provider 3.Nurse 4.Cleaner/housekeeper 5.Porter 6.OR pharmacist

3.4 Shortage of time related

1.Previous case prolonged 2.Emergency priority3.Over scheduling

3.5. Unexpected emergency

1. Cardiac arrest 2. Aspiration on the OR table 3. failed intubation/spinal

Data collector name: ---------- Signature: ---------- Date: ----

Declarations

I TasewJebessa, registration number/ID number GSR/3774/07 do hereby declare that this is my original work and that it has not been submitted partially; or full, by other person for an award of a degree in any other university/institution.

Name of participant ……signature …….date ……..

This thesis has been submitted for examination with my approval as university college supervisor.

Name of advisor……. ……signature ……date …….