

Cancelled and postponed elective cases in general surgery

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Abstract

Introduction: Cancellation and postponement of elective cases wastes time and resources. This audit was conducted to study elective general surgery cases which are postponed or cancelled.

Study design: Retrospective observational study.

Materials and methods: This audit was conducted at the Department of Surgery Khyber Teaching Hospital, Peshawar from June 2015 to January 2016. A total of 616 patients were analysed over the study period. The elective list and reasons for postponement and cancellation were collected on each operative day. In addition patient charts and notes were utilised. **Results:** Of the total 616 patients who were operated during the audit period on the elective list, there were 266(43.2%) males and 350(56.8%) females. The average age was 42.13±13.1 years. A total of 616 elective patients were booked for surgery in four operation theatres by the same unit. 69(11.2%) patients were postponed or cancelled on the elective list. Among reasons for postponement or cancellation were 17(2.8%) due to fitness related issues, 11(1.8%) due to lack of operating room time, in 12(1.9%) patients the initial operative plan was changed, 7(1.1%) for logistical and shifting reasons, 7(1.1%) had incomplete patient investigations and data, 6(1%) were not adequately prepared pre-operatively, 3(0.5%) refused consent and 1(0.2%) patients failed to show up for their surgery. In addition in 3(0.5%) cases instruments were not available and in 2(0.3%) cases the surgeon was not available. Among the reasons for lack of fitness for surgery 6(1%) had hypertension, 5(0.8%) patients had chest related pathologies, 2(0.3%) patients had deranged liver function and there was 1 patient each; 1(0.2%) non fit for surgery due to uncontrolled Diabetes, low Hemoglobin, coagulation defects and infection related complications. Of the 69(11.2%) cases postponed or cancelled, 60(87%) were cancelled on the operative day and 9(13%) were postponed or cancelled on the day prior. 49(8%) of the postponed or cancelled patients were for potentially avoidable reasons.

Conclusion: The present audit highlighted deficiency in all aspects related to elective patient preparation, operation, treatment and discharge. The leading causes for postponement or cancellation were non-fitness for surgery, change of surgical plan, lack of operation theatre time, logistical reasons and incomplete patient data. Analysis of data revealed that the majority of these factors were potentially avoidable. The audit recommends improvements to all aspects of patient management. Applying these recommendations the number of cases postponed or cancelled will fall considerably.

Key words: Cancellation, Operation room, Postponement cases.

Introduction:

The resources of tertiary care hospitals are limited compared to their requirements. Running

an operation theatre setup in such institutions requires a lot of resources. These are high value assets which requires the services of health care

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professionals from multiple disciplines, valuable devices and instruments and their running cost is in millions¹. Compared to Pakistan such operational theatres are micro managed in Europe and United States. Wastage is calculated in terms of time which goes unutilised. Non utilization of this resource is therefore calculated in terms of material losses directly arising from non-usage or misuse². After allocation of resources all required personnel and resources have to be arranged on specific times for running an operational setup. As a result postponement, cancellation or even changes in operative plan wastes these. Such wastage of resources is damaging to the doctors, the hospital and also to the patients³. The patients are often left waiting for hours at the end of which their surgery has to be rescheduled. This might also include operations that require laborious repetition of pre-operative preparation. The patients often require psychological support and counselling for a rescheduled surgery which often times in Pakistani institutions is not provided⁴. This retrospective audit was carried out to find out reasons associated with the postponement and or cancellation of elective surgeries and to provide recommendations for avoidable and unavoidable circumstances. This was aimed to provide methods for the best possible usage of resources especially operation theatres.

Methods:

A retrospective observational audit was carried out at the Surgical Department of Khyber Teaching Hospital, Peshawar, a tertiary care hospital from June 2015 to January 2016. Approval of the Hospital's research and ethical committees was taken. A total of 616 patients were analysed over the study period. The elective list and reasons for postponement and cancellation were collected on each operative day. In addition patient charts and notes were utilised. All elective cases operated at the Surgical Department were included including patients of both genders and all ages. Exclusion criteria was based upon patients with incomplete records, patients partly treated at other institutions and all patients treated and operated as emergency cases.

Local practice of pre-operative assessment of patients was followed including assessment and fitness for surgery by the anaesthetist, physician and surgeon. This involves a pre-operative round by the surgeons and anaesthetist separately. Patients who are cleared for fitness were put on the elective list. Patients who required assessment from other specialities or patients with poor fitness were written calls for assessment to the corresponding specialities.

All cases on the elective operating list of the general surgery department were included and studied over the duration of the audit. The final elective operation list was prepared night before surgery and printed as hard copies. A copy was sent to each operation theatre. Postponement was defined as cases on the elective operation theatre (OT) list for a particular day deferred for various reasons. Cancellation was defined as elective cases on the OT list on a particular day which were deliberately not performed for various reasons. All cases of postponement and or cancellation were noted down on the OT list of that particular day and reasons for postponement or cancellation were also noted. Where the reasons were related to anesthesia or fitness for surgery they were noted down by the anaesthetist themselves on the OT list.

Data was analysed in SPSS version 20 (Statistical Package for Social Sciences Inc., Chicago, IL, USA). Data was expressed in terms of frequency and percentage and presented as tables. Where required overall or only postponed or cancelled patients were described.

Results:

A total of 616 patients were analysed, of which 547(88.8%) were operated and 69(11.2%) were postponed or cancelled. Overall mean age was 42.13 ± 13.1 years. Mean age for operated patients was 41.96 ± 13.17 years and for postponed or cancelled patients was 43.49 ± 12.49 years. There were a total of 350(56.8%) female patients and 266(43.2%) male patients. The number of female patients who were operated was 304(49.4%) and who were postponed or cancelled was 46(7.5%). Similarly the number

Table I: Data analysis of audit on postponement and cancellation of elective cases

	Overall	Operated	Postponed and/or cancelled
Number of cases (N)	616(100%)	547(88.8%)	69(11.2%)
Age (Years)	42.13±13.1	41.96±13.17	43.49±12.49
Gender			
Male	350(56.8%)	304(49.4%)	46(7.5%)
Female	266(43.2%)	243(39.4%)	23(3.7%)
Avoidability	Avoidable	Not avoidable	Does not apply
	49(8%)	20(3.2%)	547(88.8%)
Day of postponement or cancellation		Operation day	Day prior
		60(87%)	9(13%)

Table II: Data analysis of reasons for postponement and cancellation

	Frequency (percentage)
Not fit for surgery	17(2.8%)
Change of surgical plan	12(1.9%)
Lack of time	11(1.8%)
Incomplete patient data and workup	7(1.1%)
Logistical	7(1.1%)
Inadequate pre-operative preparation	6(1%)
Consent refusal	3(0.5%)
Lack of instruments	3(0.5%)
Non availability of surgeon	2(0.3%)
Patient was absent	1(0.2%)

Table III: Data analysis of non-fitness for surgery

	Frequency (percentage)
Hypertension (HTN)	6(1%)
Chest related pathologies	5(0.8%)
Deranged Liver function (LFTs)	2(0.3%)
Uncontrolled Diabetes (DM)	1(0.2%)
Low Hemoglobin (Hb)	1(0.2%)
Coagulation/ hemostasis derangement	1(0.2%)
Infection and/or contamination	1(0.2%)

of male patients operated was 243(39.4%) and those who were postponed or cancelled was 23(3.7%) patients, respectively. Table-1 shows Data analysis of audit on postponement and cancellation of elective cases.

Table-2 shows data analysis of reasons for postponement and cancellation. The commonest cause for postponement and or cancellation was non-fitness for surgery with 17(2.8%) patients. Other common factors were as follows. Change

of surgical plan; 12(1.9%) patients, Lack of time; 11(1.8%) patients, Incomplete patient data and workup; 7(1.1%) patients, Logistical; 7(1.1%) patients and Inadequate pre-operative preparation; 6(1%) patients, respectively. Minor reasons for postponement or cancellation included Consent refusal; 3(0.5%) patients, Lack of instruments; 3(0.5%) patients, Non availability of surgeon; 2(0.3%) patients and Absence of patient; 1(0.2%) patients respectively.

Data analysis of non-fitness for surgery was performed as shown in Table-3. The commonest reason for non-fitness was hypertension in 6(1%) patients. This was closely followed by chest related pathologies at 5(0.8%) patients and deranged liver function (LFTs) at 2(0.3%) patients respectively. Among minor reasons there was 1(0.2%) patient each with uncontrolled Diabetes (DM), low Hemoglobin (Hb), coagulation/ hemostasis derangement and infection and/or contamination, respectively.

Data analysis of avoidability of postponement and cancellation revealed that the majority; 49(8%) of postponed or cancelled patients could possibly have been avoided. There were 20(3.2%) cases which could not have been avoided. Avoidability did not apply to the 547(88.8%) patients who were operated successfully. Majority; 60(87%) patients were postponed or cancelled on the operation day compared to 9(13%) patients who were postponed or cancelled on the day prior to the elective operation day.

Discussion:

Cancellation or postponement of elective patients booked for surgery has numerous causative factors. Despite all of these patients who are cancelled or postponed after being booked weeks in advance has damaging effect on patients. These include psychosocial, socio economic and general physical effects. Postponement or cancellation results in wastage of valuable resources including theatre time and limited hospital beds⁵.

Postponement or cancellation for elective cases

can be on the day operation day or on the day prior. Studies have shown that postponement or cancellation rates for the day of operation are usually between 10-40%⁶. In the present study the majority; 60(87%) patients were postponed or cancelled on the operation day compared to 9(13%) patients who were postponed or cancelled on the day prior. Garg R et al.⁷ showed that 30.3 % of elective patients on the operations (OT) list were cancelled or postponed on the operative (OT) day compared to 90% by Fischer et al.⁸

In the present study there were various reason for postponement or cancellation. There were 6(1%) patients who were inadequately prepared pre-operative compared to 13% by Jonnalagadda et al.⁹ and 10% by Windokun et al.¹⁰. Jonnalagadda et al.⁹ also showed that 9% of the patients were absent or did not show up. In the present study this was true for 1(0.2%) patients. In the study by Garg R et al.⁷ 16.2% patients did not show up for their booked surgery. In our study 3(0.5%) patients refused consent on the operative day and in 1(0.2%) case the patient did not show up for their elective surgery. Late consent refusal or patient absence can be attributed to anxiety, fear or personal issues. Good and through counselling to the patients regarding the nature of their procedure and type of anesthesia involved will belay most of their fears. Lack of patient doctor communication can be attributed to these cases.

In the present study 69(11.2%) patients were postponed or cancelled compared to 941(11.9%) patients by Schofield et al.¹¹ in their study on cancellation. Windokun et al.¹⁰ however reported only 38% elective cases being performed. Lack of time in operation theatre (OT) was responsible for cancellation or postponement in 11(1.8%) patients in the present study compared to 59.7% by Garg R et al.⁷, 16.1% by Schofield et al.¹¹ and 65.2% by Vinukondaiah et al.¹², respectively.

Schofield et al.¹¹ in their study showed that 10.5% patients were cancelled or postponed due to logistic reasons, 9.2% patients were unfit for

surgery and 8.2% patients did not consent to the procedure. The rates for these in the present study were 7(1.1%) patients for logistic reasons, 17(2.8%) patients unfit for surgery and 3(0.5%) patients who did not consent, respectively. Garg R et al.⁷ showed the 10.8% patients were cancelled or postponed due to medical reasons of non-fitness compared to 11.3% patients who were unfit by Vinukondaiah et al.¹²

In the present study in 12(1.9%) cases the reason for cancellation or postponement was change of surgical plan by the operating surgeon compared to 5.4% by Garg R et al.⁷. Windokun et al.¹⁰ in their study showed that in 18% of postponed cases the operation was postponed by the surgeon and in 62% cases postponed the operating surgeons did not show up.

An important reason for shortage of time in the operating room for the present study was the fact that surgeries already underway consumed more time than estimated. In some cases this was due to complications arising per-operative but in others this was caused by teaching to junior doctors by the seniors. In very few instances this was caused by an excess of patients on the booked elective list. Excess booking of patients on the elective lists was a minor finding in the present study however it is estimated that around 56,000 cases in the United States (US) are overbooked annually¹¹. In the study by Pandit et al.¹³ excessive booking of elective lists was the commonest cause for postponement and cancellation.

In the present study additional analysis for shortage of time in the operating theatre was not performed however the various reasons found during the study period included delay in intubation and or problems related to anesthesia, expertise of operating surgeon, non-availability of equipment, drapes or instruments and late start of the operation theatre¹⁴.

Garg R et al.⁷ in their study showed that 10.8% patients were postponed due to non-fitness from medical reasons. In the present study 17(2.8%) patients were unfit for surgery mainly due to medical related pathologies and an addi-

tional 7(1.1%) patients were cancelled or postponed due incomplete patient data and workup. Non fitness for surgery especially due to medical reasons is a particularly draining cause for the patient and embarrassing for the operative team. Patients often wait for hours only to find abnormalities or non-fitness. This wastes operation theater time and resources. In the present study cases were postponed or cancelled most commonly due to hypertension (HTN); 6(1%) cases even after normal reading on the day prior. This can be attributed to patient anxiety and psychological reasons related to a first surgical experience.

In the present study 7(1.1%) patients were postponed or cancelled due to logistical reasons and 3(0.5%) patients due to lack of drapes, trolley or instruments. Garg R et al.⁷ in their study showed that 3.7% patients were postponed or cancelled due to administrative reasons including lack of instruments, drapes and trolleys. Such factors can only be attributed to managerial inefficiency due to absence of coordination between the operation theatre assistant and the operative team. In almost all circumstance these are avoidable.

Conclusion:

The present study has highlighted deficiency in all aspects related to elective patient management. The leading causes for postponement or cancellation were non-fitness for surgery, change of surgical plan, lack of operation theatre time, logistical reasons and incomplete patient data. Analysis of data revealed that the majority of these factors were potentially avoidable. The audit recommends improvements to all aspects of patient management.

Recommendations:

These recommendations if followed will greatly improve the shortcomings. As a result postponement and cancellation will be avoided. These include the following:

- All patients on the elective list should first undergo fitness for surgery assessment involving all related disciplines. Only fit for

surgery patients should be put on the list.

- Patients should be thoroughly counselled not only about the nature and type of their operative procedure and anesthesia but also the whole experience from admission till discharge.
- All elective patients' data, investigations and operative stuff should be shifted to the theatre ensuring nothing is left behind.
- Personnel associated with the operation theatre should be punctual about their duty hours.
- The operation theatre staff should coordinate with all related personnel including surgeons, anaesthetists and logistical personnel for an efficient on time schedule without interruptions or delay.
- All involved personnel should coordinate and pre-empt required materials including drapes, trolleys and instruments.
- Surgeons with required expertise who are likely to take leave on the operative day should if possible inform in advance of their non-availability. The patient thus losing their turn can be replaced with another. This would prevent postponement.

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