



To explore the impact of following the pre-operative fasting guidelines by ASA (American society of anesthesiologists), in improving patient outcome.

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ABSTRACT... Objective: To analyze the occurrence and consequences of a prolonged preoperative-fasting. **Study Design:** Cross-sectional study. **Setting:** Large tertiary care hospital in Pakistan. **Period:** October 2018 to October 2019. **Material & Methods:** We collected data for all the procedures that occurred during the study period and divided the cases into emergency procedures, add-on procedures and elective cases. We excluded the first cases of the day and excluded the emergency and add-on cases. We studied the patients NPO duration and their scheduled start time of the procedure and compared with their actual start time of the procedure. **Results:** The study population was n= 434 cases. Of these 434 cases n= 164 cases were performed on time and n= 270 cases were delayed by 60 minutes or more from their scheduled time. The most frequent reason was a previous cases running longer than expected in 59.25% of the cases, the second most common reason was a change in sequence and order of the procedures which was the case for delay in 14.44% of the cases. The overall mean time of NPO for the patients was found to be 770.1 +/- 130.6 minutes, for the delayed cases the mean time duration of NPO was 812.3 +/- 105.3 minutes. The mean time of case delay was 155.2 +/- 102.7 minutes for overall cases and for the significantly delayed case the mean time period of delay was 190.2 +/- 92.1 cases. **Conclusion:** Our results showed that 60% of the cases have a prolonged NPO status due to delays in start of their surgical procedure as compared to the scheduled times.

Key words: Delays, Fasting, Patient Experience, Surgery.

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INTRODUCTION

Most operating rooms around the globe face one form or the other of delays in conducting the surgical procedure.¹ This usually results in frustration and anxiety for everyone involved right from the patient and care takers to the physicians and hospital staff. Fasting prior to the surgical procedure is standard for all procedures where general anesthesia is used and sometimes even when local anesthesia is used. This is to prevent all the avoidable complications such as aspiration of the gastric contents during or immediately after the procedure when the patient might not be able to control their anti-peristaltic movements.² However, following the standard protocol of fasting have met with unplanned delays to the procedure might result in very long fasting periods for the

patients. There events might negatively affect the patients experience of the surgical procedure. The first reported practice of pre-operative fasting was recorded in 1883 and the practice was adopted and well-studied after 1946.^{3,4} There are several complications associated with a prolonged fasting time, one such complication is the exacerbation of gout in patients diagnosed with the illness. It can also impact the patient's hydration status, drug kinetics and patient's hemodynamic status during the surgery.^{5,6} The American Society of Anesthesiologists (ASA) published their guidelines for 'nil per os' in 2011. The goal was to improve safety of anesthesia and reduce the rate of complications. The guideline provided instructions for high risk patients and similarly for low risk patients as well.⁸ Not following

the guidelines might result in prolongation of fasting and it's associated the complications. The aim of our study is to analyze the occurrence and consequences of a prolonged fasting in patients admitted at our large tertiary care hospital, in Pakistan.

MATERIAL & METHODS

The cross-sectional study was conducted for a duration of one year from October 2018 to October 2019, at a single Tertiary care hospital in Pakistan after approval from ethical committee (Letter# MS/GMCHS/SUKKUR/4026). At the time of the study the hospital had eight working operation rooms, and individual surgical departments were assigned rooms during the certain time and days of the week. We collected data for all the procedures that occurred during the study period and divided the cases into emergency procedures, add-on procedures and elective cases. We excluded the first cases of the day and excluded the emergency and add-on cases (added within 24 hours of the day of the operation).

The aim was to have some semblance of predictability of scheduling in our selected cases. This would also eliminate any skews and outliers in our data. The patients are taken to the operating room area an hour before the start of their surgical procedure, where they wait for their turn of the procedure. While waiting in the recovery area the patients are identified and provided various pre-operative treatments and measures to prepare them for the ensuing procedure. This is based on the departments and the hospitals protocols for the recovery area. When its time for the procedure, the patient is escorted into the actual operating room where the events of the surgery take place.

Every day a scheduled start time for all the surgeries is posted, while the other information such as NPO status among others are noted in the patient's hospital record. Additionally, we recorded the time patients spend in the recovery room, the time when they were transported to the operating room, the time anesthesia was initiated, duration of surgery and time the patient

is shifted from the operating room were noted. All the data was arranged to meet our study's needs. We included data from various departments of Surgery and allied sciences such as General Surgery, Gynecology, Neurosurgery, Orthopedics, Ophthalmology and Otolaryngology.

RESULTS

Out of the total n= 4320 cases performed at our institute during one year, we included n= 520 cases in our study population, as they had the most complete data. Since a lot of different faculties and residents were involved we filtered the uncompleted data to meet the study's needs. Of these 520 cases n= 86 cases were add on cases. The final study population was n= 434 cases. Of these 434 cases n= 164 cases were performed on time and n= 270 cases were delayed by 60 minutes or more from their scheduled time. The reason for delays is given in Table-I.

The most frequent reason was a previous cases running longer than expected in 59.25% of the cases, the second most common reason was a change in sequence and order of the procedures which was the case for delay in 14.44% of the cases. The overall mean time of NPO for the patients was found to be 770.1 +/- 130.6 minutes, for the delayed cases the mean time duration of NPO was 812.3 +/- 105.3 minutes. The mean time of case delay was 155.2 +/- 102.7 minutes for overall cases and for the significantly delayed case the mean time period of delay was 190.2 +/- 92.1 cases. None of the patients in the study had remarkable complications or side effects of the delay of the surgical procedure and prolongation of the fasting.

DISCUSSION

Current surgical practices often ask the patients to follow the NPO schedule from midnight the day before the procedure. This is true for patients even when their scheduled start time of the procedure is not in the early morning hours. However, there is merit to having a uniform NPO time for the patients as keeping track and maintaining patient NPO status is hurdle for the residents and surgeons.

Variable	Reason for Delay	Number of Events
Patient not NPO	Patient arrived in the recovery room with inadequate nil per os status	5 (1.85%)
Prioritizing Emergency cases	Emergency cases were given priority over scheduled cases	9 (3.33%)
Late arrival of patient	Patient not present in the recovery room an hour before the surgery, thus delaying the pre-surgery preparations, hence the procedure is delayed overall.	17 (6.29%)
Late arrival of health care provider	One of the prime health care provider (surgeon, surgeons assistant or any other important personnel) were late to arrive at the hospital/ operating room.	28 (10.37%)
Change in order of procedures	The order of surgeries were changed caused delay to the procedure.	39 (14.44%)
Run over of the previous cases	The case being operated run over their scheduled time, delaying all the ensuing cases.	160 (59.25%)
Other reasons	A variety of other reasons for the delay of the procedure ranging from maintenance to administration.	12 (4.44%)
Total		270

Table-I. Reason for delay in surgery in n= 270 patients.

This is especially true in a developing country like Pakistan where patient's level of education and comprehension plays a big role in the maintenance of their NPO status.

However unnecessary delays and prolongation of the NPO status should be avoided when necessary, as it leads to harm to patient and some medical conditions are prone to more complications, such as diabetes mellitus among others. Our results showed that the length of NPO is prolonged above the recommendations made by ASA, and that current protocols that were in place did not account the NPO practice is designing the standards and protocols (SOPs), this is due to the fact that hospital administrations do not consider NPO time management, when it comes to making decisions to include emergency and add-on cases and changing the case order, on the day of the surgery.⁹ This is especially true of teaching hospitals, where this additional burden to teaching young doctors causes further delays in patient flow. Sometimes the cases are rescheduled due to these delays, which begs the question on priorities of the hospital policy makers, whether they consider provider convenience over patient stress and wellbeing. Other similar studies share our sentiments in this regard.^{10,11,12,13,14} It is imperative that policy makers, medical providers and patient lobbying organizations come together and re-design the

SOPs of NPO and patient management in the operating/recovery room. One recommendation is scheduling less number of cases and having period of leeway to accommodate patient delays and unpredictable events. There were some limitations to our study, firstly, it was conducted at a single tertiary care hospital, hence all the departments followed the same guidelines as set by the hospital administration, hence a confounder or bias in the policies would reflect in all the procedures. Secondly, we eliminated a large number of patients as their data was incomplete, this could have removed the especial cases where delays were even longer.

In summary, this study was the first of its kind in Pakistan that looked at patients NPO status and delays in the surgical procedure. We recommend that anesthetists all over the country be compassionate towards the patients NPO status and respect the patient's time, while maintain the standards and protocols and allowing time for unplanned events.

CONCLUSION






Our results showed that 60% of the cases have a prolonged NPO status due to delays in start of their surgical procedure as compared to the scheduled times.

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