



# Clinical audit on Nil per Oral (NPO)

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## Aim

To reduce prolonged fasting or inadequate fasting prior to anesthesia by proper patient education and care, thereby preventing its complications.

## Purpose of the audit

Fasting before general anesthesia aims to reduce the volume and acidity of stomach contents, which reduces the risk of regurgitation and aspiration.

However, unnecessary prolonged fasting periods might result in thirst and hunger before surgery which decreases patient satisfaction and increases the risk of post induction hypotension. Therefore, maintaining proper Nil Per Oral timings play a major role in improving patient outcome before, during and after surgery.

## Materials

- 1) Place of audit: KMC Specialty Hospital, Cantonment
- 2) Date of audit: July 2022 to January 2023.
- 3) Source of audit: Operation Theatre, KMC specialty hospital, Cantonment
- 4) Done by: Department of Anesthesiology

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## Methodology

All patients undergoing elective surgery under Anesthesia.

Demographic details of patient

Diagnosis and proposed surgery

Duration of fasting – type of meal: heavy meal, semi solid and clear liquid.

General physical condition, urine output, IV fluid infusion value, vasopressor usage.

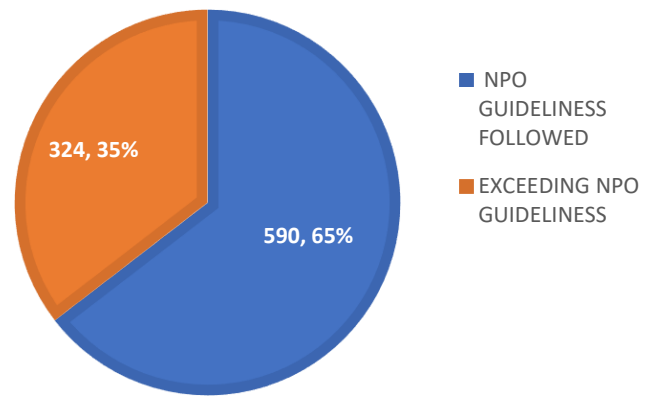
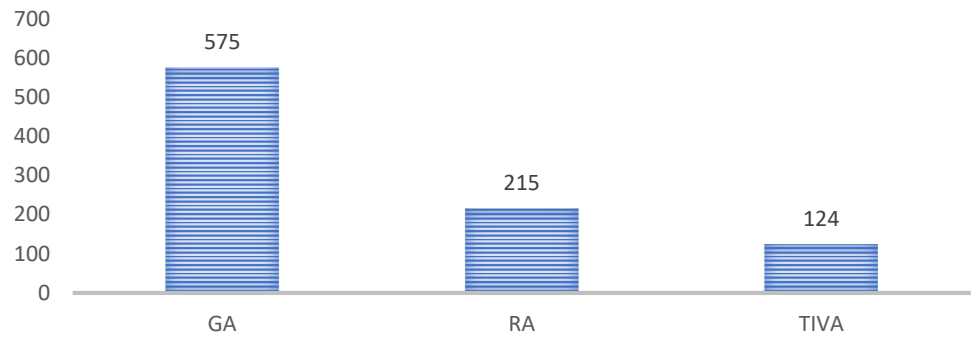
## Traditional practice



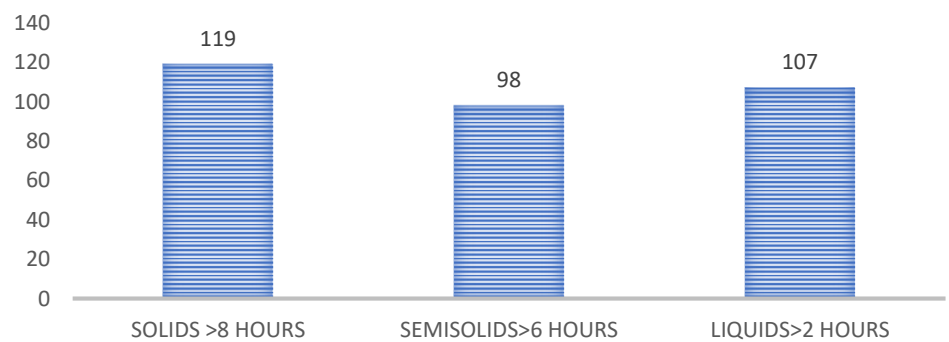
Results for the data of 2022(October to December)

Total Cases - 914

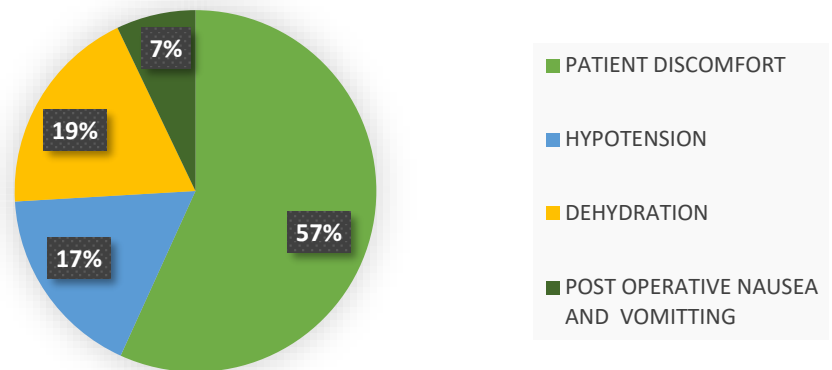
### MODES OF ANAESTHESIA



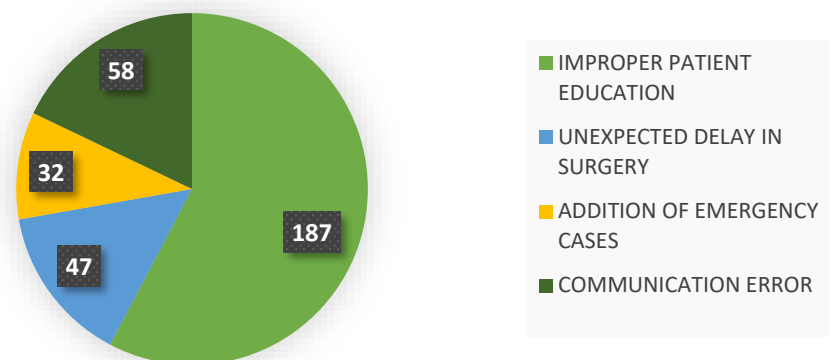
### NUMBER OF PATIENTS NPO EXCEEDING NORMAL TIME



### COMPLICATIONS DUE TO PROLONGED FASTING



### REASONS FOR PROLONGED FASTING



#### Problems identified

- 1) Improper patient education
- 2) Inadequate knowledge among paramedical staff
- 3) Unexpected delay in surgery
- 4) Addition of emergency cases
- 5) Communication error

#### Observation

A 35% of the population had complications associated with prolonged fasting.

Patient with prolonged fasting develop,

- 1) Anxiety
- 2) Drowsy
- 3) Pre-operative and intra-operative thirst
- 4) De-hydration
- 5) Hemodynamic alteration – tachycardia and hypotension
- 6) Metabolic alterations

Updates from recent journals

- 1) There is growing evidence that more liberal clear fluid intake might not increase the risk of pulmonary aspiration.

- 2) Recent studies and researches encourage clear fluids Upto 1 hour before elective general anaesthesia.
- 3) One study was undertaken with 150 ml of water 2 hours prior to surgery vs overnight fasting usual practice
- 4) Patients who consumed 150 ml water 2 hours prior to the procedure had gastric pH and volume unaffected whereas in patients with prolonged fasting there was an decrease in gastric pH and increase in volume.

NPO After midnight – Blanket fasting policy

Recommended ASA Guidelines

- 1) 8 hr - Fatty and oily foods
- 2) 6 hr - Solids
- 3) 4 hr -Semisolids,breast milk
- 4) 2 hr - Liquids

**NPO After Midnight**

**THINGS WE DO FOR NO REASON**

<p><b>Why you might think that making patients NPO after midnight is appropriate</b></p> <p></p> <p>Influential 1940s report described risk of aspiration under GA in pregnancy. This was generalized to all patients by 1960s. NPO at midnight ensures that patients are ready for a procedure at any time.</p>	<p><b>Why the indiscriminate use of NPO after midnight is unnecessary</b></p> <p></p> <p>Gastric emptying studies show that clear liquids are out of the stomach within two hours. Times vary for other food and drink. 10%-20% "NPO after midnight" orders are avoidable.</p>	<p><b>What you should do instead</b></p> <p></p> <p>For low-risk patients, follow ASA NPO guidelines for type of food or drink ingested. Patients should take appropriate home meds. Focus on liquids and time-based preprocedural NPO status.</p>
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**Black MKM et al. June 2021**  
Visual Abstract by @acastellMD

Journal of Hospital Medicine

**Corrections implemented**

1. Improper patient education

- a. Detailed explanation and counselling during Pre-operative assessment
- b. Most of the time patient don't know what kind of food comes under semi solids and liquids
- c. So we gave them a printed chart regarding foods which they can consume will give a clear idea to patients
- d. All patients were given 150 ml of tender coconut water 2 hours prior to the procedure

**What can they have?**

Solids	8 hr	Regular meals, Breakfast
Semisolids	6 hr	Pulpy juices, Tender coconut, Milk products
Liquids	2 hr	Clear water, Filtered juice, Tender coconut water

NIL PER ORAL FOR ADULTS & PEDIATRIC PATIENTS COMING FOR SURGERY		
Foods	Fasting hours	Comment
Clear Liquids	2	Water, Clear Tea, Fruit juices without pulp, Black Coffee, Coconut Water
Breast milk	4	
Non human milk/ Infant formula feeds	6	Gastric emptying time same as solid foods
Light meals	6	Toast with clear fluids, rice non fried foods.
Heavy meals	8	Fried foods, fatty foods, meat.

2. Unexpected delay in surgery

3. Addition of Emergency cases

4. Communication error

One solution for all these problems was,

We appointed a physician assistant to look for the new added cases and delayed cases everyday routinely in the morning and accordingly communicate with the corresponding ward staffs and patients.

We encouraged adequate intake of clear water and filtered juices during the time of delay so that NPO status could also be maintained with patients comfort and satisfaction.

**How we managed the surgery time changes**

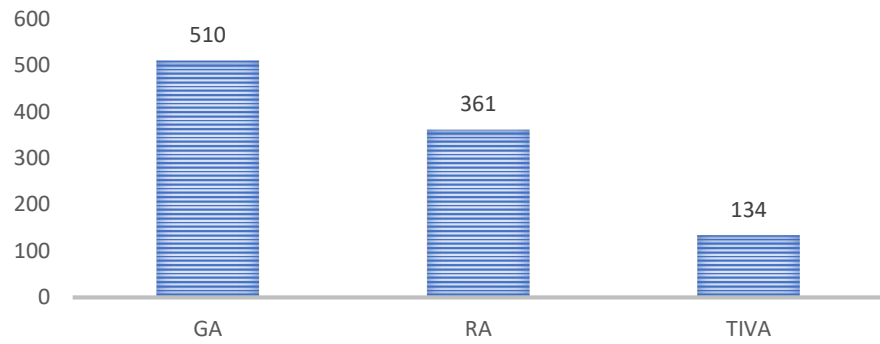
Not advised to take following drinks 2 h prior to surgery

- 1) Energy drinks
- 2) Coconut water
- 3) Lemon pulp

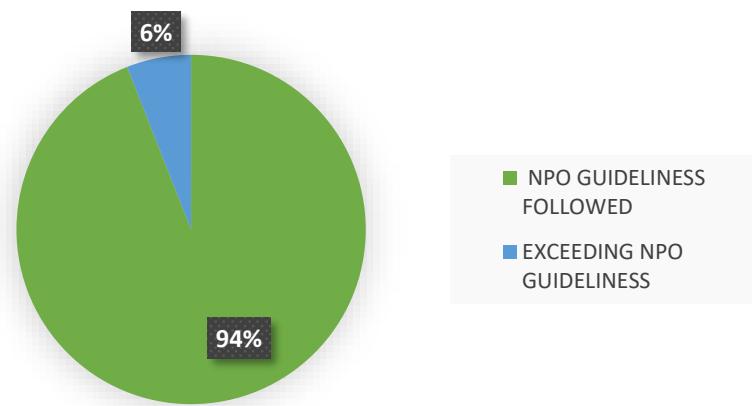
**Results for the Data of 2023 (January to March)**

Total Cases - 100

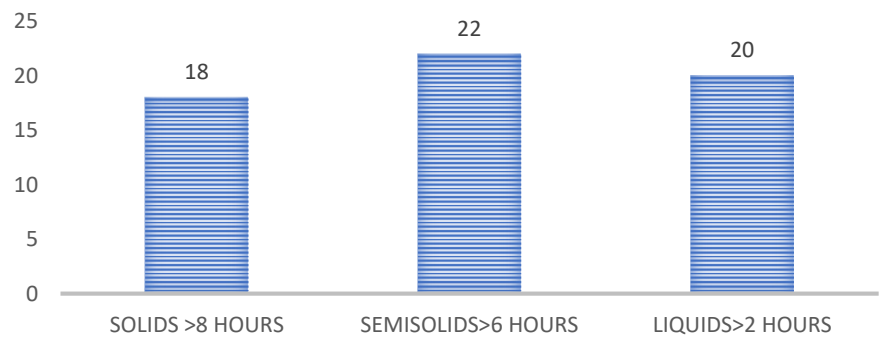
### MODES OF ANAESTHESIA



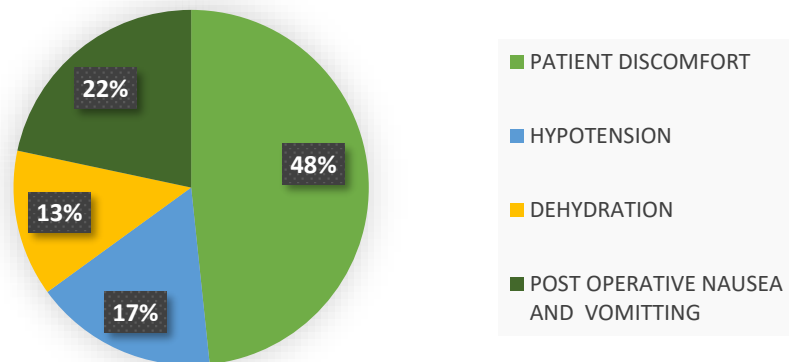
### Total number of patients exceeding NPO guidelines



### TOTAL NUMBER OF PATIENTS EXCEEDING NPO GUIDELINES



**COMPLICATIONS DUE TO PROLONGED FASTING**



**Observation**

- 1) Only 9% of the population exceeded the standard NPO timeline
- 2) Patient satisfaction and comfort was improved
- 3) Dehydration, Thirst, anxiety, hypotension was minimized after these measures
- 4) Hemodynamic stability was much better intra operatively
- 5) Post-operative wound healing was also much better and early recovery could be achieved.

**Comparison of Both the Data's**

Parameters	2022 (%)	2023(%)
Patient discomfort	56	11
Hypotension	18	15
Dehydration	18	13
Post op nausea	7	6

**Conclusion**

Hence,

- 1) Proper education
- 2) Proper communication
- 3) Proper follow up

Helped in improving patient satisfaction and minimising intra operative complications due to prolonged fasting.