



Improved Patient Experience through Fluid Administration in PACU – FLAIR (Fluids and Feeding After Surgery) Project

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Introduction

Patients scheduled for procedures are required to fast; to prevent aspiration during anaesthesia. However, after surgery, they are given food or drinks only when they reach the ward. Delays to discharge to ward from Post-Anaesthesia Care Unit (PACU) and postoperative nausea and vomiting (PONV) may further delay resumption of oral intake. **Prolonged perioperative fasting is associated with increased thirst, hunger, and patient dissatisfaction.**

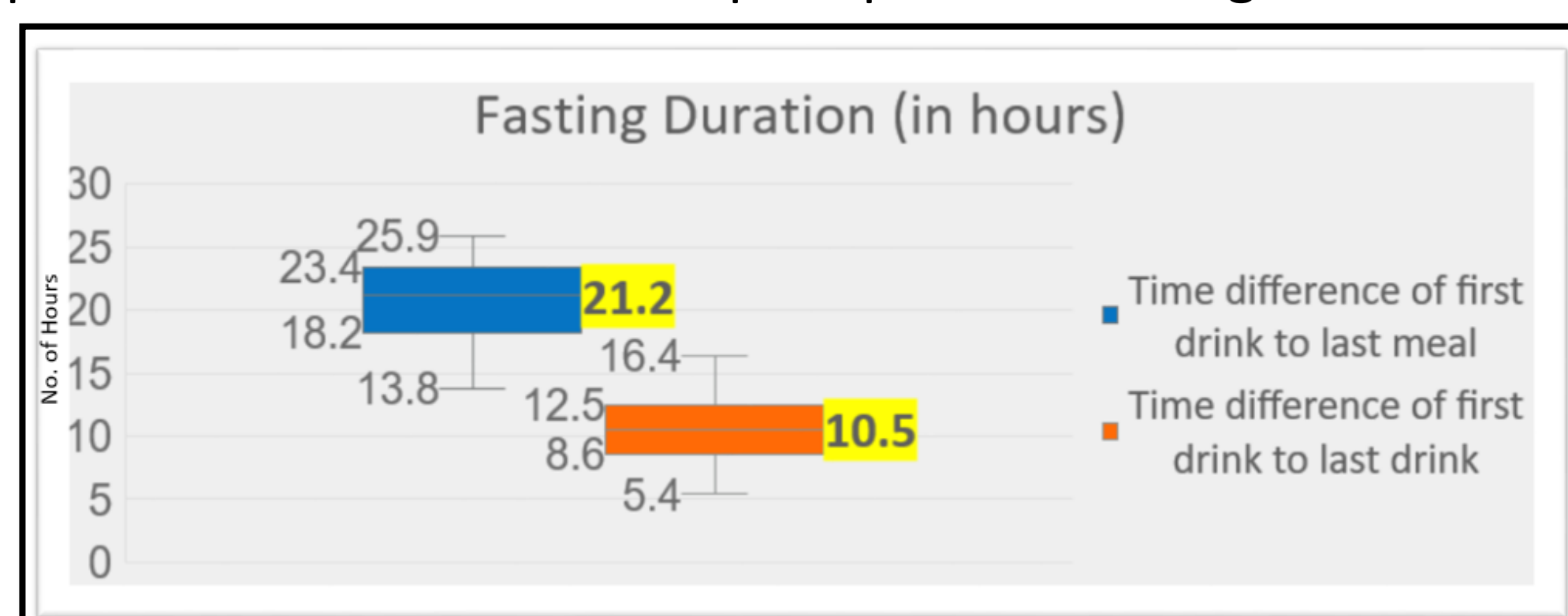
Early oral hydration with fluids in PACU for patients who have undergone Laparoscopic Cholecystectomy / non-gastrointestinal surgeries after General Anaesthesia has shown to be safe and effective in reducing thirst, oropharyngeal discomfort and increasing satisfaction. ^{1,2}

Baseline Audit

In SGH, a baseline audit was conducted in December 2019 with 62 patients who underwent Orthopaedic Surgery under Regional Anaesthesia showed:

- 84% had stable vital signs and fulfilled criteria for oral hydration within 15mins of arrival in PACU
- While in PACU, 56% were keen for a drink with a median thirst score of 3.3/10
- Low incidence of nausea (5.5%), vomiting (3.6%) and need for anti-emetics (1.9%) in PACU
- Majority stayed beyond 45 mins in PACU (median 110mins) in which delayed their post-operative resumption of oral intake
- Median fasting time from the patient's last drink to patients' first drink in the ward was 10.5hrs
- Incidence of post-operative nausea increased to 19.7% after discharge to ward

This is the target group for intervention to reduce perioperative fasting time.



Fasting duration in baseline cohort

Objectives

To improve the perioperative experience of patients undergoing Orthopaedic Surgery under Regional Anaesthesia in SGH by achieving the following outcomes within 6 months:

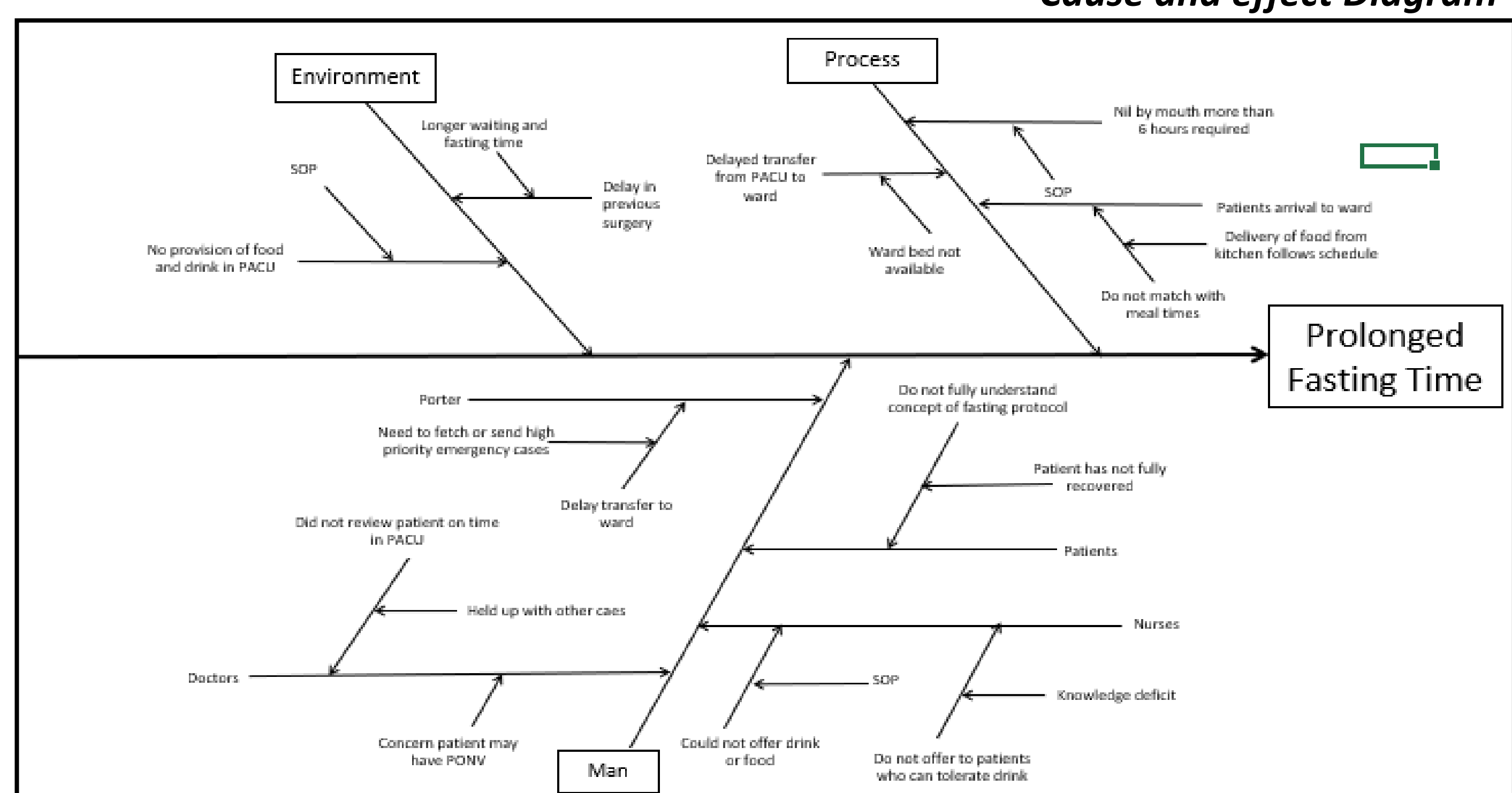
- To increase the proportion of post-operative patients receiving oral hydration from 0% to 50% amongst patients who fulfilled the criteria in PACU.
- To reduce the incidence of post-operative nausea before first diet in the ward by 25%, from 19.7% to 15%, through prophylactic administration of anti-emetics in OT/PACU.
- To reduce the average fasting time from patient's last drink to patient's first drink by 10%, from 11.4h to 10.3h.
- To reduce the average fasting time from patient's last diet to patient's first drink by 10%, from 21.5h to 19.4h.

Methodology

Analysis of problem

Roots causes for prolonged perioperative fasting were identified:

Cause and effect Diagram



The final root causes for prolonged perioperative fasting were:

- Standard operating procedure (SOP) - patients in PACU are not allowed to receive fluids.
- Knowledge deficit amongst PACU nurses.
- Anaesthetists have concerns - patients may develop PONV.

Implementations

PDSA 1: Changed SOP whereby eligible patients with stable vital signs and keen to drink were given 100mls of water, 30 minutes after arrival in PACU.

PDSA 2: Recruited nursing champions in Operating Theatre and ward to share knowledge and the new initiative for patients who have undergone Orthopaedic Surgery under Regional Anaesthesia. These patients are at low risk of PONV and safe to receive water early in PACU.

PDSA 3: Team member, an Anaesthetist disseminated baseline audit findings to all other Anaesthetists; to encourage prophylactic administration of anti-emetics intraoperatively to reduce PONV.

Results

Interventions were carried out from Aug to Nov 2020 with 130 patients, who had undergone Orthopaedic surgery under Regional Anaesthesia.

Outcome 1: 100% of patients fulfilled criteria for oral hydration at 30min, and 83.7% (108) were keen and received a drink in PACU.

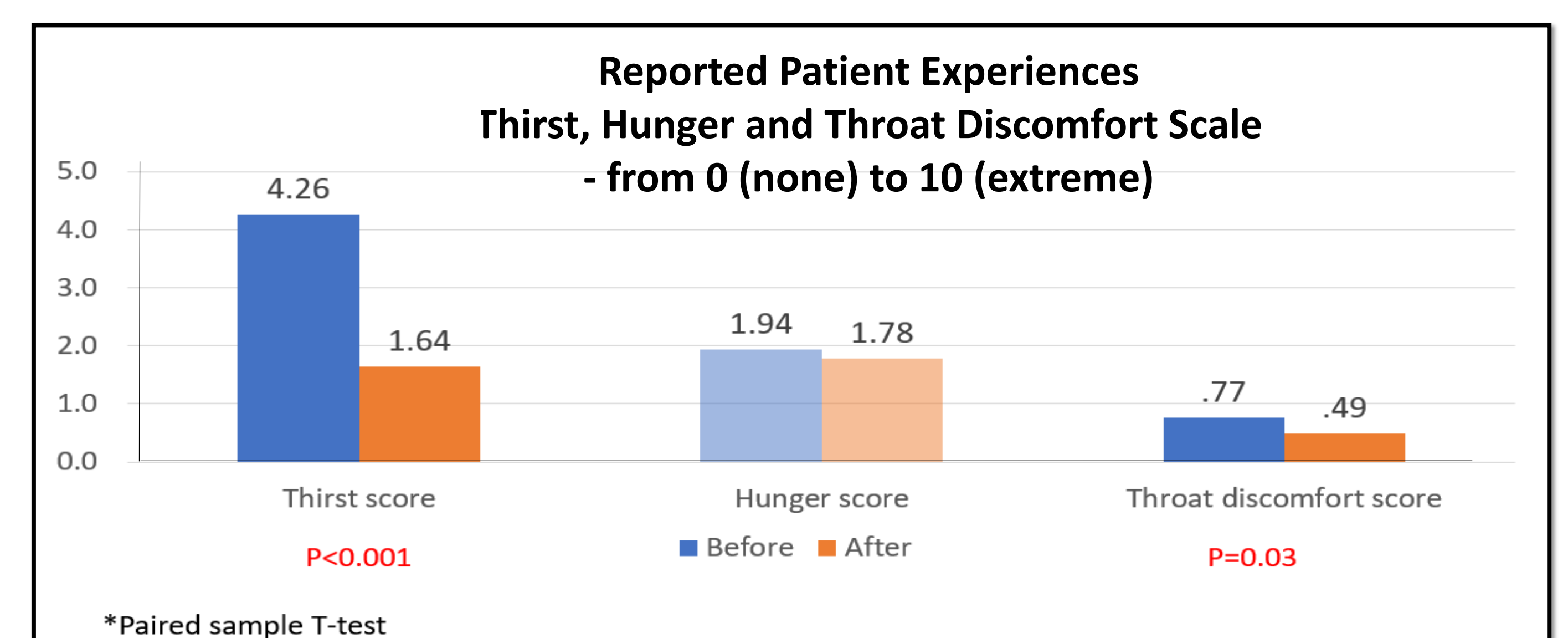
Outcome 2: 73.1% received intraop anti-emetics; an additional 7.0% received anti-emetic in PACU. There was a reduction in incidence of nausea before diet in the ward, from 19.7% to 12.0%, which was not statistically significant based on Fisher's exact test. (p=0.19)

Outcome 3: 40% reduction in last drink to first drink, from an average time of 11.4h (± 4.7) to 6.8h (± 1.9). (p < 0.0001, mean reduction of 4.6h (95% CI 3.6 to 5.6h)) ^

Outcome 4: 16% reduction in last meal to first drink, from an average time of 21.5h (± 5.5) to 17.6h (± 2.9) (p < 0.0001, mean reduction of 3.8h (95% CI 2.6 to 5.2)) ^

Final results with patient-reported outcome - Significant reduction in thirst and throat discomfort scores in patients who received fluids in PACU. No adverse events were reported.

^ based on unpaired T-test



Conclusion

Early fluids for low-risk patients after surgery improves tremendously patient satisfaction and comfort, meeting the hospital goal of "Best Outcome, Best Experience" for our surgical patients in Major OT SGH, our Quality Mission of "Care to Heal" and Core Value of Collaboration; working closely together with various departments.

Now, providing fluids have been extended to all our surgical patients undergoing elective surgery and who meet the criteria. These patients are given milo drinks, after they have successfully drank clear fluids of plain water.

References

- Yin X, Ye L, Zhao L, Li L, Song J. Early versus delayed postoperative oral hydration after general anesthesia: a prospective randomized trial. *Int J Clin Exp Med.* 2014;7: 3491–3496.
- Wu M, Yang L, Zeng X, Wang T, Jia A, Zuo Y, et al. Safety and Feasibility of Early Oral Hydration in the Postanesthesia Care Unit After Laparoscopic Cholecystectomy: A Prospective, Randomized, and Controlled Study. *J Perianesth Nurs.* 2019;34: 425–430.
- Statistics are computed using online statistical calculators found at : <https://www.graphpad.com/quickcalcs/>