Quality Improvement Project: Minimizing preoperative fasting times in children

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AIM: To reduce preoperative starvation times for clear fluids to < 90 minutes for 80% of paediatric patients having elective or emergency surgery

INTRODUCTION:

Prolonged peri-operative fasting times in paediatric patients have been associated with detrimental physiological and metabolic effects in younger children, as well as an increase in nausea, vomiting, irritability and anxiety in the wider paediatric population (1,2,3,4). Recent research suggests that liberal clear fluid fasting in children is unlikely to be associated with an increased risk of pulmonary aspiration or an increased morbidity and mortality (5). Based on this evidence a consensus statement by the combined European Societies (APAGBI, ESP, and ADARPEF) states:

" it is safe and recommended for paediatric patients to have clear fluids up to 1 hour before elective general anaesthesia". (6)

METHODS:

Data was collected for paediatric patients undergoing surgery at the Royal London Hospital, Whitechapel, London between February and May 2019 and August-October 2020 by the paediatric anaesthetists. This took the form of a questionnaire completed at induction detailing age of patient, medical comorbidities, type of surgery, surgical specialty, emergency or elective surgery, source of given fasting information, fasting guidance given, time fasted for solids, breast milk and clear fluids, demeanor of child, clinical signs of dehydration and need for more than 3 attempts at cannulation.

References:

1. Denhardt N, Beck C, Huber D, et al. Optimized preoperative fasting times decrease ketone body concentration and stabilize mean arterial blood pressure during induction of anaesthesia in children younger than 36 months: a prospective observational cohort study.Pediatr Anesth. 2016;26:838-843.
2. Schreiner MS, Triebwasser A, Keon TP. Ingestion of liquids compared with preoperative fasting in pediatric outpatients. Anesthesiol-ogy. 1990;72:593-597.
3. Castillo-Zamora C, Castillo-Peralta LA, Nava-Ocampo AA. Randomised trial comparing overnight preop erative fasting Vs oral administration of apple juice at 06:00-06:30 am in pediatric orthopaedic surgical patients. Pediatr Anesth. 2005;15:638-642.
4. Splinter W, Stewar d J, et al. The effect of preoperative apple juiceon gastric contents, thirst and hunger in children .Can J Anaesth.1989;36:55-58
5. Thomas M, Morrison C, et al. Consensus statement on clear fluid fasting for elective pediatric general anesthesia. Pediatric Anesthesia. 2018; 28:411-414

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RESULTS:

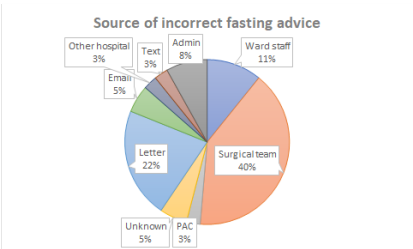
Key findings audit cycle 1 2019:

- The data of 100 patients was analysed (3 months- 16 years, mean age 6.7).
- 50% of patients did not have clear fluids within 2 hours of surgery. Mean fasting time 6.5 hours.
- 28% of these were 2 and under. Mean clear fluid fasting time 7.3 hours. (Range 3-20 hours).
- 82% emergency list patients did not have clear fluids within 2 hours of surgery.
- Only 6% of patients received correct fasting advice prior to surgery.
- 71% of patient letters gave traditional 2 hour clear fluid fasting advice.
- Parent/staff being unaware of guidance was the most common cause of clear fluid fasting > 3 hrs.

In the first plan-do-study-act cycle the patient information letter was updated to reflect the current APA consensus statement allowing clear fluids up to 1 hours before surgery.

Key findings audit cycle 2 2020:

- The data of 92 patients was analysed.
- 58% of patients did not have clear fluids within 2 hours of surgery. Mean fasting time 6.7 hours.
- 17% of these were 2 and under. Mean clear fluid fasting time 7.3 hours. (3-11 hrs)
- 58% emergency list patients did not have clear fluids within 2 hours of surgery.
- 42 % patients received incorrect fasting advice prior to surgery (See chart).
- The child declining and parents/ward staff being unaware of 1 hour fasting guidance for clear fluids were the main reasons identified for prolonged fasting of clear fluids.



DISCUSSION:

- Children undergoing surgery in our institution have average fasting times for clear fluids longer than the recommended guidance.
- Updating patient information letters has improved parent education but not overall mean fasting times.
- We have found the causes of prolonged fasting to be multifactorial and will therefore develop a targeted approach.
- Targeting of younger patients is particularly important.

ACTION PLAN:

- Staff education sessions.
- New fasting guidance leaflet for emergency patients.
- Posters to go in day stay ward to update staff and parents of new guidelines.
- Amend paediatric team brief proforma to include individual clear fluid recommendations.
- Development of a perioperative guideline app for staff reference.
- 3rd audit cycle following implementation of these changes.