

Paediatric Fasting Times Audit

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Abstract

Background: Current hospital fasting guidelines for elective paediatric surgical patients are 6 hours for solids, 4 hours for breast milk and 2 hours for clear fluids as per Association of Anaesthetists of Great Britain and Ireland (AAGBI) guidance. However newer evidence led to the Association of Paediatric Anaesthetists of Great Britain and Ireland (APAGBI) releasing a consensus statement in 2018 that 1 hour fasting for clear fluids is sufficient to reduce the risk of pulmonary aspiration. Many studies have found that paediatric patients are fasted for too long, leading to agitation and a higher risk of complications such as post-operative nausea and vomiting (PONV) and hypoglycaemia.

Aim: To determine the average fasting time of elective paediatric patients.

Methods: Retrospective case note review of 100 patients.

Results: The mean fasting time was 12 hours 25 minutes for solids and 7 hours 19 minutes for clear fluids. 12 patients developed post-operative complications; 50% had PONV, one developed hypoglycaemia, and 5 were unrelated to fasting time (e.g., post-operative bleed).

Conclusion: Paediatric patients are being fasted for too long for both solids and clear fluids. All patients with PONV had prolonged fasting times. As only one patient had a blood sugar measurement, the true issue of hypoglycaemia is unknown. There is ongoing discussion regarding the benefit of intra-op blood sugar measurement. The recommended clear fluid fasting time for paediatric patients has been reduced to one hour. There needs to be improved communication between theatres and surgical admission teams to allow patients to have clear fluids following decision of the theatre list order. Information given to parents is being reviewed. Re-audit to determine if changes have been effective.

Introduction

Fasting guidelines for elective paediatric patients have classically been 6 hours for solid food, 4 hours for breast milk and 2 hours for clear liquid. Evidence suggested these times adequately reduce the risk of pulmonary aspiration on induction of general anaesthesia. Newer research has since shown that fasting for 1 hour for clear fluids is sufficient to reduce the risk of pulmonary aspiration but also increases patient comfort [1].

However, in practice, many studies have found that the paediatric population is being fasted for excessively longer. Further evidence has demonstrated that excessive fasting can lead to complications including an increased incidence of post-operative nausea and vomiting (PONV), detrimental effects to metabolism and increased patient agitation [1,2]. Therefore, an audit at Royal Preston Hospital was conducted to evaluate the fasting times for paediatric patients undergoing elective surgery and elicit any complications associated with prolonged fasting.

Method

The audit was a retrospective case note review of 100 elective paediatric patients presenting for surgery over a 3-month period (October –December) at Royal Preston Hospital. Information was collected from scanned pre-operative assessment notes and the theatre care pathway on Evolve (the hospital scanning storage system) and inserted into an Excel spreadsheet. The data was analysed manually. Data was collected on demographics, the planned surgical procedure, fasting times and any complications. The fasting times were calculated from the last time the patient had solid food/milk or clear liquid until they entered the anaesthetic room. This information is documented routinely as part of the nursing checklist on the patients' theatre care pathway and anaesthetic review on day of admission. The theatre care pathway is then used for documentation of the patients' surgical journey and could therefore be used to identify the time into the anaesthetic room and any complications that arose either prior to or at induction, intra or post-operatively.

Results

Included in the audit were 46 female patients and 54 male patients with a mean age of 7.5years, (range 0-17 years). The most common surgical specialties were Ears, Nose, Throat (ENT) 50%, Plastics 16% and Oral and Maxillofacial Surgery 11%.

The mean fasting time for solid food was 12 hours and 25 minutes with a range of 4 hours 50 minutes to 19 hours 20 minutes. The mean fasting time for clear liquid was 7 hours 19 minutes with a range of 2 hours to 15 hours 45 minutes.

Six patients were cancelled but not due to inappropriate fasting times and there were no changes to the theatre list order due to fasting times. Two patients were identified as having complications on induction- one was due to loss of IV access and the other due to laryngospasm. 12 Patients had documented post-operative complications: five PONV, one hypoglycaemia, four post-operative bleed, one rash and one laryngospasm. Information regarding fasting times given to parents at pre-operative assessment was verbal and documentation of this was often poor.

Discussion

The audit demonstrated that most paediatric elective patients were being excessively fasted with 58% of patients not having a drink of clear fluids for over 5 hours prior to surgery. Furthermore, over 30% of these patients were in hospital for over 3 hours prior

to the start of their surgery. This suggests that if offered a drink of clear fluid on arrival to hospital, this would reduce the incidence of excessive fasting considerably.

One patient was fasted for only 4 hours and 50 minutes for solid food, they were 4 years old and there was no documentation regarding the reasoning behind not waiting for the full 6 hours. Although there were no documented complications, for an elective patient there should be clear documentation with regards to not waiting for the full recommended fasting time.

Documentation of fasting times was poor in 29% of cases with 'last night' being written as opposed to an actual time. For these results, the fasting time was calculated from midnight. It is likely to have been earlier in these patients and therefore the fasting times even longer than stated in the results.

The two patients who had complications on induction were felt to be unrelated to the excessive fasting times. Of the 12 patients who had documented post-operative complications, 50% were deemed to be unrelated to excessive fasting times (bleeding, rash, and laryngospasm).

5% of patients had documented PONV, the percentage of patients is likely to be higher as most studies have found an incidence of 13-42% [3]. However, of importance is that all five of the patients with documented PONV had been excessively fasted for both solid food and clear liquids. Although this does not show a causal relationship, none of the paediatric patients without excessive fasting times had documented PONV.

The one patient who developed hypoglycaemia was 10 months old and had breast milk 6 hours and 15 minutes prior to surgery and water 3 hours prior to surgery. The blood sugar was 3.9 and recovered quickly with dextrose. He was the only patient out of the 100 studied who had a blood sugar measured. Therefore, the true extent of hypoglycaemia in this population was unknown. He was not excessively fasted which could raise concerns for other young paediatric patients who could have undetected hypoglycaemia, particularly if they have been excessively fasted. This raises the question of the benefit of monitoring blood sugars intra-operatively for paediatric patients.

A criticism of this audit would be that it did not evaluate patient comfort. This would be difficult to assess as it was a retrospective analysis of patient records. On repeating the audit, a prospective method including patient satisfaction questionnaires could be considered.

A further criticism would be that the reason for excessive fasting times was not established, but it is likely to be multifactorial. The verbal information given to parents was often unclear in the notes, particularly for the patients who attended pre-operative assessment clinic. For those patients who did have documented information, it was frequently from the surgical team who advised nil by mouth from midnight which would therefore lead to excessive fasting.

Six patients were cancelled but there were no cancellations or list changes due to inappropriate fasting times. Of the six patients who were cancelled, only one had clear documentation about being offered food and drink following cancellation.

Recommendations

- Due to the current evidence, the fasting guidelines at Royal Preston Hospital have been reduced to one hour for clear fluids for paediatrics.
- All paediatric patients should be given a drink of clear fluid on arrival to the pre-operative admissions lounge
- Improve communication between pre-operative admission lounge and theatres so that once list orders have been established, paediatric patients should continue to have clear fluids up until one hour before surgery
- Information given to parents needs to be reviewed- consideration of leaflets and posters in pre-operative clinics with the risks of excessive fasting included
- Audit results distributed to surgical specialties to ensure consistent information given to parents regarding fasting times
- Consideration of blood sugar monitoring intra-operatively
- Re-audit once paediatric elective work has been established post covid-19

References

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