

Investigation of Preoperative Fasting Times in Children

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Purpose: *The aim of this study was to investigate preoperative fasting times of children.*

Design: *A prospective and descriptive design was used.*

Methods: *The study was carried out in the pediatric surgery departments of a University Faculty of Medicine Hospital, between January 1 and May 31, 2012. The sample included 332 pediatric patients having surgery with general anesthesia and their family. Data were collected via patient and family interview using a 28-item questionnaire developed by the researchers.*

Findings: *29.2% of the sample was between the age of 1 and 3 years, of which 68.1% were male. 82.5% had day surgery. 94.9% of families were informed about the operation and 97.6% about nutrition before the operation. The children were fed an average of 10.51 hours before the operation (n = 203) with clear liquids, 6.27 hours (n = 52) with breast milk, 9.9 hours (n = 107) with baby food or cow's milk, 11.22 hours (n = 100) with toast and other, and 12.25 hours (n = 106) with daily food. About 65.6% of children between the years 0 and 3 (n = 151) declared being hungry when they were going to surgery, and 58.9% said that they were thirsty. Of the children older than 3 years (n = 181), 55.2% were hungry and 58.0% were thirsty.*

Conclusions: *Results indicate that patients' preoperative fasting times were longer than recommended by current guidelines.*

Keywords: *fasting, preoperative care, pediatrics, perianesthesia nursing, preoperative period, research.*

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Conflict of interest: None to report.

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PERIANESTHESIA NURSES PLAY an important role in preparing children for surgery.¹ The preoperative fasting of children in the hospital is ensured because of nursing supervision. For outpatient surgical operations, however, preoperative fasting is the responsibility of the parents.²

The main aim of preoperative fasting is to reduce the risk of pulmonary aspiration of the stomach contents.¹⁻⁵ Prolonged preoperative fasting, however, might cause negative effects, such as a sense of hunger, discomfort, headache, dehydration, hypovolemia, and hypoglycemia.^{1,2,6} Staying hungry for a long time before an operation might also result in a decrease in patient satisfaction, late recovery, and late hospital discharge in the postoperative period.^{1,7}

Preoperative fasting guidelines recommend clear liquids up to 2 hours before surgery, breast feeding up to 4 hours, light meals up to 6 hours, and heavy/fatty meals for up to 8 hours before surgery. The suggestions differentiate depending on the age of the patient and the type of the food eaten.⁸⁻¹⁵

Although safe preoperative fasting times are defined, the issue remained unresolved in the study clinics. This study was designed to investigate preoperative fasting times and the hunger/thirst state of children undergoing general anesthesia.

Materials and Methods

Sample

This prospective descriptive study was carried out in the Pediatric Surgery Departments of a University Faculty of Medicine Hospital between January 1 and May 31, 2012. The sample included 332 patients who had surgery under general anesthesia and agreed to participate in the study.

Data Collection Tools

The data were collected using a 28-item questionnaire developed by the researchers. The questionnaire included nine questions about sociodemographic factors and 19 questions about pediatric operations, preoperative information received, nutritional conditions, and preoperative fasting time. Data collection was conducted via patient and family interviews. The level of hunger and thirst was ranked using a 0-to-10-point scale by children who were older than 3 years and by the parents of children between 0 and 3 years. Data were collected before the patients left the clinic. The time of assessment took approximately 15 minutes.

Ethical Aspects

The verbal consent of the families participating in the study and written consent of the University Faculty of Medicine Hospital was obtained to perform the study. Data were collected from the parents and children who were willing to participate in the study.

Statistical Analysis

Data analysis was performed using SPSS, version 16 (SPSS Inc., Chicago, IL), for Windows.

Findings

Sociodemographic factors are presented in [Table 1](#). 82.5% of the children had outpatient surgeries; 94.6% of parents were informed about the operation and dietary changes that would apply before the surgery.

The average preoperative solid meal fasting time was 10.17 hours; 31.0% had a fatty meal and 31.0% had a light meal as the last preoperative intake. The average liquid preoperative fasting time was 9.43 hours, with 46.1% of participants having water as their last intake.

When the fasting time of the children was investigated in accordance with the last meal they had eaten, it was found that the children were fed on average 10.51 hours before surgery ($n = 203$) with clear liquids, 6.27 hours ($n = 52$) with breast milk, 9.9 hours ($n = 107$) with baby food or cow's milk, 11.22 hours ($n = 100$) with toast and other, and 12.25 hours ($n = 106$) with daily food ([Table 2](#)).

65.6% of children between ages 0 and 3 years ($n = 151$) were noted by their parents as being

Table 1. The Sociodemographic Distribution of the Sample

	Number	Percentage
Age groups		
0 to 1 y	54	16.3
1 to 3 y	97	29.2
3 to 6 y	81	24.4
6 to 12 y	66	19.9
12 y and older	34	10.2
Gender		
Female	106	31.9
Male	226	68.1
Area of living		
Village	21	6.3
Town	8	2.4
District	120	36.1
City	183	55.1
Education		
Not going to school	201	60.5
Kindergarten	35	10.5
Primary school	74	22.3
High school	16	4.9
Special education	6	1.8
Sum	332	100

Table 2. The Distribution of Children in Accordance With the Last Food They Had Eaten

Food Eaten	Suggested Time of Fasting	Time of Fasting Measured (h)
Clear liquids (Water, tea, nonfibrous juice)	2	10.51
Breast milk	4	6.27
Formula/milk other than breast milk	6	9.9
Light foods (eg, toast and tea)	6	11.22
Heavy foods	8	12.25

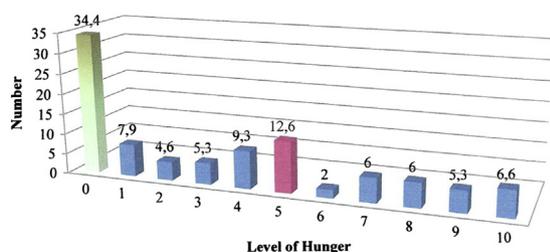


Figure 1. The level of hunger experienced by children between 0 and 3 years old. This figure is available in color online at www.jopan.org.

hungry when they were going to the surgery, 58.9% were thirsty; 12.6% had hunger scores of a 5 on a 10-point scale. 11.9% had a thirst score of 6 on a 10-point scale (Figures 1 and 2). 55.2% of children aged 3 years and older ($n = 181$) declared that they experienced hunger, and 58.0% of them declared that they felt thirsty. 8.3% of the children experienced hunger scoring at 5 points, and 8.3% of them experienced hunger scoring at 10 points of a 10-point scale (Figure 3). 10.5% of children said that their thirst scored 10 of 10 points (Figure 4).

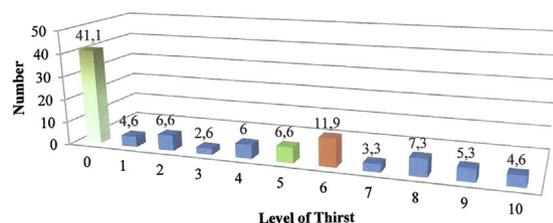


Figure 2. Level of thirst experienced by children between 0 and 3 years old. This figure is available in color online at www.jopan.org.

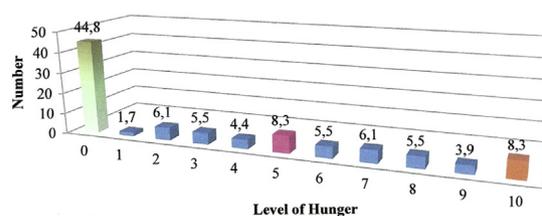


Figure 3. The level of hunger experienced by children older than 3 years. This figure is available in color online at www.jopan.org.

Discussion

Preoperative fasting times of children was longer in this sample than suggested by practice guidelines, although 97% of the families had been informed about recommendations beforehand. When the length of this period was investigated, it was found that the reason for the longer fasting period was that parents did not want to wake their children up during the night, the operation was postponed to the afternoon, or some patients were referred to the university hospital from other hospitals or clinics.

Preoperative fasting time of children was longer than suggested in commonly used guidelines.^{8-11,13} Gebremedhn and Nagaratnam¹⁴ found that most

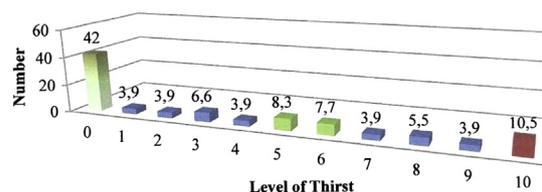


Figure 4. Level of thirst experienced by children older than 3 years. This figure is available in color online at www.jopan.org.

patients fasted from both food (92%) and fluid (95%) longer than the fasting time recommended by current guidelines. The study was conducted with 43 patients (35 adults and 8 children). The minimum, maximum, and mean fasting hours for food were 5, 96, and 19.60, respectively. The minimum, maximum, and mean fasting hours for fluid were 5, 19, and 12.72, respectively.

Adenekan¹⁵ found that the average preoperative fasting time for children ($n = 78$) was 13.4 ± 3.5 hours (range, 4 to 18.5 hours), but no child was hypoglycemic throughout the study. Engelhardt et al⁵ found that the average preoperative fasting time for children was 12.05 hours, average preoperative time children spent without water was 7.57 hours, and when evaluated with the Likert scale, 56.0% of the children were hungry/too hungry, and 26.7% of them were too thirsty. It was found that most of the children felt hunger or thirst. Gebremedhn and Nagaratnam¹⁴ found that many patients (37.2%) experienced mild to severe hunger because of prolonged fasting from food, and a larger number (49%) experienced slight to severe thirst because of prolonged fasting from fluid. No study was found on pediatric fasting times in Turkey.

Conclusion

Preoperative fasting times of patients were found to be longer than expected. It is suggested that the surgical team should plan multidisciplinary approaches to make sure that the preoperative fasting times of children are implemented as recommended in the guidelines.

Relevance to Clinical Practice

Although the parents of day-surgery children are informed about fasting time, it is observed that the parents do not obey feeding times, and the preoperative fasting times are longer than suggested. It is suggested that surgical nurses should emphasize the importance of appropriate pediatric fasting times during preoperative teaching and should investigate the reasons for longer fasting times.

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Contributions: *Study design:* ED and MY. *Data collection:* BE and AI. *Analysis:* ED and MY. *Manuscript preparation:* ED, MY, BE, and AI.

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