

THIRST AND FASTING TIME ASSESSMENT IN SURGICAL PATIENTS

AVALIAÇÃO DO TEMPO DE JEJUM E SEDE NO PACIENTE CIRÚRGICO

EVALUACIÓN DEL TIEMPO DE AYUNO Y SED EN EL PACIENTE QUIRÚRGICO

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Objective: to assess preoperative fasting time, presence and intensity of thirst in the immediate postoperative period. **Method:** documentary, quantitative, and descriptive research carried out in 2018, in a university hospital, with a sample of 749 patients. **Results:** the mean time of absolute dry fasting was 15:00 (SD 6:30). Urological surgery patients showed longer fasting time (16:56; SD 9:09). Regarding age group, the fasting time varied from 13:29 (SD 7:34) for children, 15:06 (SD 6:32) for adults, and 15:41 (SD 4:37) for elderly. Thirst discomfort was present in 84.5% of the patients, with a mean intensity of 6.54 (SD 2.39) in the postoperative. There was a significant relationship between fasting time and the presence of thirst. Most patients (85.4%) did not spontaneously complain about thirst. **Conclusion:** the preoperative fasting time was longer than expected, regardless of the surgical clinic or age group. The elderly group showed longer mean fasting time.

Descriptors: Fasting. Thirst. Perioperative Nursing.

Objetivo: avaliar o tempo de jejum pré-operatório, presença e intensidade da sede no pós-operatório imediato. Método: pesquisa documental, quantitativa, descritiva, realizada em 2018, em hospital escola, com amostra de 749 pacientes. Resultados: o tempo médio de jejum absoluto foi de 15:00 (DP 6:30). Pacientes cirúrgicos da urologia apresentaram maior tempo de jejum (16:56; DP 9:09). Em relação à faixa etária, o tempo de jejum variou de 13:29 (DP 7:34) para crianças, a 15:06 (DP 6:32) em adultos e 15:41 (DP 4:37) em idosos. A sede foi um desconforto presente em 84,5% dos pacientes, com intensidade média de 6,54 (DP 2,39) no pós-operatório. Houve associação significativa entre tempo de jejum e presença de sede. A maioria dos pacientes (85,4%) não se queixou de sede espontaneamente. Conclusão: o tempo de jejum pré-operatório foi maior do que o preconizado, independente da clínica cirúrgica ou faixa etária. Os idosos apresentaram maior tempo médio de jejum.

Descritores: Jejum. Sede. Enfermagem Perioperatória.

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Objetivo: evaluar tiempo de ayuno preoperatorio y presencia e intensidad de sed en posoperatorio inmediato. Método: estudio documental, cuantitativo, descriptivo, realizado en 2018 en hospital escuela, sobre muestra de 749 pacientes. Resultados: el tiempo promedio de ayuno absoluto fue de 15:00 (DS 6:30). Los pacientes quirúrgicos de urología presentaron mayor tiempo de ayuno (16:56; DS 9:09). Respecto al segmento etario, el tiempo de ayuno varió de 13:29 (DS 7:343) para niños a 15:06 (DS 6:32) en adultos y 15:41 (DS 4:37) en ancianos. La sed estuvo presente en 84,5% de los pacientes, con intensidad promedio de 6:54 (DS 2:39) en posoperatorio. Hubo asociación significativa entre tiempo de ayuno y existencia de sed. La mayoría de los pacientes (85,4%) no se quejó espontáneamente de sed. Conclusión: el tiempo de ayuno preoperatorio fue mayor al recomendado, independientemente de la clínica quirúrgica o la faja etaria. Los ancianos mostraron mayor tiempo de ayuno.

Descriptor: Ayuno. Sed. Enfermería Perioperatoria.

Introduction

Preoperative fasting is a common practice recommended for the purpose of ensuring gastric emptying and reducing the risk of adverse respiratory events. These take place primarily during the anesthetic procedure, due to the blockage of the airway protecting reflexes⁽¹⁻²⁾ However, the preoperative fasting period observed in clinical practice exceeds the recommendations of well-established protocols, such as the American Society of Anesthesiology (ASA)⁽³⁾ and the Enhanced Recovery After Surgery (ERAS). These changes were proposed by multimodal protocols, which apply evidence-based medicine to contribute to the recovery of surgical patients⁽⁴⁾.

The ERAS was designed by a European multicenter group in 2001, and led to the creation of the Accelerated Total Postoperative Recovery (ACERTO) project implemented in Brazil in 2005. It consists of a multidisciplinary perioperative care program to accelerate the recovery of surgical patients. Among its cornerstones, there is the reduction of preoperative fasting time⁽⁴⁾.

The ASA provides guidelines with high evidence levels, and recommends the ingestion of clear fluids without waste in free amount, up to two hours prior to the surgical anesthetic procedure. Fluids without waste include water, coffee (black), tea, carbonated beverages (sodas), fruit juices without pulp, and beverages rich in carbohydrates. Regarding other foods, the recommendation is four hours of fasting for breast milk, six hours for a light diet and

non-breast milk, and eight hours for solid and fatty foods⁽³⁾.

The reduction of fasting time is strongly recommended for accelerating the recovery of patients and decreasing surgical stress. However, in clinical practice, few services adopt it, thus submitting their patients to periods of absolute dry and extremely prolonged fasting⁽⁵⁾.

Prolonged fasting increase metabolic changes resulting from surgical trauma. After a few hours without nutrient intake, the body reduces the levels of circulating insulin and starts the glycogenolysis process. Concomitant to the glycogenolysis process, the gluconeogenesis is also activated, using muscle protein as an energy source. The main physiologic change regards the increase in insulin resistance, which has an impact on the immunologic and inflammatory response, including the scarring process^(4,6). Therefore, patients in the preoperative phase find themselves in catabolism, with the purpose of providing energy to the body to maintain the cellular homeostasis⁽⁶⁾.

Additionally, prolonged fasting has a negative impact not only on physical balance, but also on emotional aspects, besides compromising patient satisfaction with the surgical experience. A very common symptom with a high level of discomfort related to fasting is perioperative thirst⁽⁷⁾. The thirst symptom shows uncomfortable attributes that affect patients in the immediate postoperative (IPO) period, such as dry lips, mouth, and throat, thick tongue and saliva,

bad taste in the mouth, and the urge to drink water⁽⁸⁻¹⁰⁾.

A study carried out with adult and elderly surgical patients showed a fasting mean of 16.2 hours for clear fluids and 17.3 hours for solid foods⁽¹⁰⁾. In pediatric procedures, this reality is not different, since children are often kept fasting up to 73 hours in the preoperative⁽¹¹⁾. Another study showed an excessive amount of fasting time in 70% of the children⁽¹²⁾.

Several studies were carried out with the aim of assessing preoperative fasting time and its impact on anesthesia. A Cochrane review, gathering 25 studies with pediatric patients, concluded that the recommendations for fluid intake of up to two hours prior to the surgical procedure are safe, as long as there is no difference in pH and gastric volume quantified in the intraoperative.⁽¹³⁾ Other studies with children did not find a correlation between the reduced interval in preoperative fasting and the increase in the volume of the gastric content⁽¹³⁻¹⁵⁾. It occurs due to the gastric emptying time after the ingestion of clear fluids within 30 minutes in healthy children⁽¹⁵⁾. Furthermore, there was no statistically significant difference in the change in pH and in residual gastric volume, when researchers compared one versus two hours of fasting⁽¹⁴⁾.

Given the context of prolonged fasting time in clinical practice and the consequences arising from this event, and with the aim of providing subsidies for decision making with a focus on patient-centered care, the objective of the current study is to assess preoperative fasting time, and presence and intensity of thirst in the immediate postoperative.

Method

A documentary, quantitative, and descriptive study was carried out. The Group for Study and Research on Thirst (GPS, as per its acronym in Portuguese) has a database, in which information related to the research was added. The data follow the same collection script and protocol, thus enabling further analysis. The

sample consisted of 749 surgical patients of both genders, submitted to elective or urgency/emergency surgery between January 2014 and April 2018.

The place of study was a high complexity university hospital in northern Paraná state, with 316 beds available for the Unified Health System (SUS, as per its acronym in Portuguese). It relies on one surgical center consisting of seven operating rooms, one pre-anesthetic room, and six beds in the Post-Anesthetic Recovery Care Unit (PACU), performing 640 surgeries per month on average. Data collection was carried out during the IPO, still in the anesthetic recovery room.

The inclusion criteria were: being a patient who remained in the IPO in the anesthetic recovery room, being over 4 years old and advised about time and space, and being capable of reporting the time they were kept under preoperative fasting. The information regarding children was collected through their caregivers' accounts. From this sample, patients that showed severe pain and communication difficulty were excluded, because they did not have adequate conditions to participate in the research.

The data collection script included demographic information and variables related to the preoperative fasting time, presence of thirst, spontaneous complaint, and intensity assessed through a verbal rating scale in adults, with a score from 0 to 10, and a facial rating scale in children, with a score from 0 to 4. Thirst is a discomfort systematically assessed in the institution regarding its presence and intensity during the anesthesia recovery period.

The data were doubly typed and tabulated in Microsoft Excel® program, receiving descriptive statistics treatment using the IBM SPSS Statistics 20 program. The analysis of core measures (mean and standard deviation) was carried out for age, thirst intensity, and preoperative fasting time. Gender, surgical clinic, presence of thirst, and spontaneous verbalization variables were described in absolute numbers and rates. The fasting time variable showed a nonparametric distribution, whereas the Mann-Whitney test

was applied to assess the relationship between fasting time and the presence of thirst.

The data analyzed in the current study are secondary to the studies developed by the GPS, and met the ethical rules established by Resolution number 466/2012 of the Brazilian National Health Council. The original studies were assessed and approved by the Research Ethics Committee of the State University of Londrina. There was no identification and no personal contact with any of the participants.

Results

The database consisted of 749 patients. The prevalence was the female gender with 417 (55.7%) participants, the mean age was 36.3 years (SD 17.3), ranging from 4 to 85 years. The age group was subdivided into children (4-12 years – n=81), adults (13-59 years – n=586), and elderly individuals (60-85 years – n=82). The surgical clinics and mean fasting time are described in Table 1.

Table 1 – Descriptive distribution of absolute time in hours by surgical clinic. Londrina, Paraná, Brazil – 2014-2018 (N=749)

Surgical clinic	n	%	Mean fasting time	Confidence interval (95%)	Standard deviation
Digestive System	50	6.7	15:08	13:33-16:43	5:33
Head and Neck	50	6.7	15:19	13:44-16:54	5:33
Cardiac	39	5.2	12:56	11:25-14:28	4:41
Obstetrics and Gynecology	214	28.6	15:03	14:12-15:53	6:16
Neurosurgery	17	2.3	16:37	14:52-18:21	3:22
Ophthalmology	15	2.0	13:38	10:10-17:05	6:15
Orthopedics	179	23.9	15:11	14:13-16:08	6:31
Otolaryngology	31	4.1	15:43	14:37-16:49	3:00
Surgical Emergencies	16	2.1	16:25	11:19-21:31	9:34
Thoracic	9	1.2	14:41	10:49-18:32	5:01
Urology	48	6.4	16:56	14:16-19:35	9:09
Vascular	16	2.1	13:08	10:46-15:29	4:26
Oral and Maxilla	16	2.1	14:09	12:22-15:56	3:20
Pediatric Surgery	47	6.3	13:15	10:29-16:02	9:27
Plastic	1	0.1	14:35*	-	-
Dental Surgery	1	0.1	11:00*	-	-
Total	749	100	15:00	14:32-15:28	6:30

Source: Created by the authors.

* Just one patient analyzed.

Note: Conventional signal used:

- Numeral data equal to zero not resulting from rounding up.

The preoperative fasting time was assessed in different age groups and is described in Table 2.

Table 2 – Absolute fasting time in hours by age group. Londrina, Paraná, Brazil – 2014-2018

Age group	n	%	Mean fasting time	Confidence interval (95%)	Standard deviation
Children (4-12)	81	10.8	13:29	11:48-15:09	7:34
Adults (13-59)	586	78.2	15:06	14:35-15:38	6:32
Elderly (60-85)	82	10.9	15:41	14:40-16:42	4:37
Total	749	100	15:00	14:32-15:28	6:30

Source: Created by the authors.

The presence of thirst was reported by 633 (84.5%) patients. Just 109 (14.6%) patients verbalized spontaneously this symptom. The spontaneous verbalization of thirst was higher in children (56.8%), followed by adults (14.8%) and elderly participants (6%).

The mean thirst intensity was 6.54 (SD 2.39). Mean fasting time for patients who manifested thirst was 15:23 (SD 6:44), and for patients who did not show thirst was 14:29 (SD 15:37). The mean thirst intensity in children was 2.85 in the facial rating scale with variation from 0 to 4.

The Mann-Whitney test showed that the fasting time had a connection with the presence of thirst ($U=25444.500$; $p<0.001$).

Discussion

The relevance of this study lies in measuring the mismatch between the prescribed preoperative fasting time and that practiced by health institutions. In addition, it confirms the presence and intensity of a discomfort commonly neglected, but prevailing: thirst. The results found in this study corroborate what is observed in clinical practice and in the literature, in which an exceedingly preoperative fasting time is perpetuating in the reality of the studied institution, regardless of the surgical clinic or the age group of the patient.

Other Brazilian public institutions report similar data. In a randomized clinical trial carried out with surgical elderly patients, it was found that the absolute mean fasting time was 13:30 hours. This same study showed that, at the time the patient arrives at the surgical center, 70% of those who were fasting were hungry and 90% were thirsty. In addition, the study confirmed that just 40% of the patients were satisfied with the surgical anesthetic care, while they were in absolute dry fast. These data differ from 90% of the satisfied patients who received beverages high in carbohydrates, two hours prior to the surgical anesthetic procedure⁽⁵⁾.

Even the surgeons themselves, who prescribe preoperative fasting, often do not realize the number of excessive hours recorded

in their prescriptions. In a study carried out with surgeons, when asked the amount of preoperative fasting time they prescribed for solids and fluids, the answers were compared with the medical records. The surgeons said they prescribed eight hours for solid food and three hours for fluids. However, the mean fasting time registered in the medical records reached 12 hours (between 8 and 21 hours) for solid food and 10 hours (between 2 and 18 hours) for clear fluids⁽¹⁶⁾. These results are similar to those found in the current study. This slight mean difference between solid and fluid fasting, as evidenced in the cited study, confirms that, in practice, the prescriptions are not personalized according to the different types of food.

This study also shows that the mean fasting time was higher for the elderly, revealing a divide between what is recommended by the protocols and what is carried out in the practice. Given the metabolic characteristics of this population, the harmful effects of fasting are potentialized, causing an increase in the consumption of metabolic reserve, thus exacerbating the surgical trauma⁽⁴⁻⁵⁾.

Among other reasons for extending fasting are the delay and postponement of surgeries, which could prolong fasting up to 16 hours on average⁽¹⁷⁾. This may be one of the reasons that explain the high average of absolute dry fasting in this study.

The lack of customization of prescriptions for preoperative fasting and the excessive amount of time with no food lead to harmful effects to the patient. Among them, there is the increase in gastric residual volume, with reduction in the pH, thus increasing the risk of bronchoaspiration^(6,13-14). However, the ingestion of clear fluids, up to two hours prior to the procedure, lower the residual volume and increase the pH⁽¹⁷⁾. Adding to this argument, there is evidence that a prolonged preoperative fasting, aside from being very uncomfortable and unnecessary, can be harmful since it optimizes and perpetuates the organic response to the surgical trauma^(1,6,17).

Thirst is one of the distresses triggered by fasting. It is defined as the search for water

and is expressed by surgical patients as one of the main distresses experienced during this period. It is present in 88.5% of pediatric surgical patients⁽¹¹⁾ and in 89.6% of adult patients⁽¹⁰⁾ in IPO. The current study found a prevalence of thirst in 84.5% of the patients, with a significant association of preoperative fasting time with the presence of thirst in the IPO ($P < 0.001$).

Thirst is caused by a combination of factors which, in the preoperative period, include anxiety, fear of the unknown, preparations related to the procedure to be submitted, pre-existent comorbidities, in addition to the prolonged and unnecessary fasting. As a result of these factors, there is the drying of the mouth cavity, which represents the main and most prevalent attribute of thirst⁽¹⁸⁻¹⁹⁾.

In the transoperative period, patients are submitted to orotracheal intubation, keeping the oral cavity exposed. They receive anesthetic drugs, such as opioids and anticholinergics, in addition to presenting blood loss^(8,20). These factors contribute to the occurrence of biochemical and hormonal reactions, thus triggering thirst. This is characterized by an intense discomfort and identified as: dry mouth, lips, and throat, thick tongue and saliva, bad taste in the mouth, and the urge to drink water⁽⁹⁾.

In the postoperative period, patients experience the most ruthless part of the thirst, after remaining fasting for excessively long periods, many times because of lack of knowledge of the surgical staff managing thirst in a safe manner in the perioperative⁽²¹⁻²²⁾. This symptom is reported by the patients in the postoperative as agonizing, exceeding hunger and even pain. Nevertheless, the staff continues underestimating, undermeasuring, and undertreating this symptom^(18,23-24).

Perioperative thirst is based on visual perception and verbalization. The current study showed that just 14.8% of the adults verbalized feeling thirsty spontaneously, which confirmed the evidence also produced by this study group demonstrating the spontaneous account of thirst in the IPO in just 13% to 18% of patients⁽⁸⁾.

Among the key factors that contribute to this silence there is the institutionalized culture that advocates that fasting must be maintained at any cost, whether during the preoperative or in the postoperative. This dogma is repeated and emphasized to patients who, even experiencing intense thirst during the entire perioperative period, remain silent thinking that this is the price to be paid to undergo surgery safely^(18,23).

A study case with a patient that manifested intense thirst during the pre-, trans-, and immediate postoperative, without spontaneous verbalization, identified that he considered that the assisting staff should have questioned him about the possibility to intervene in the distress he was experiencing. Since they did not react, he remained silent, thus prolonging his suffering⁽²³⁾.

Spontaneous verbalization may be more present in children (59% in the current study), which suggests that it is related to the spontaneity present in this age group^(11,25). Therefore, the silent related to thirst should not be treated as a lack of symptom, but rather as a warning sign to be investigated⁽²³⁾.

Conclusion

The mean preoperative fasting time observed in this study was 15 hours, and was longer for the elderly group (15:41). This demonstrates a major difference between the fasting time proposed by the current standard protocols and that practiced by the healthcare service.

There was a significant association between preoperative fasting time and the presence of thirst in the postoperative. Thirst was a discomfort identified by most patients (84.5%), with high intensity (6.54). Spontaneous verbalization was lower in adults (14.8%) and elderly (6%), and higher in children (56.8%).

Taking into account the study data and the strong clinical evidence, it is worth noting the importance of the health care service to follow the current protocols proposed by the category associations, implementing individualized prescriptions for solid and fluid fasting. It is also essential to include an understanding of

the benefits of receiving clear fluids two hours prior to the surgical-anesthetic procedure. In addition, in clinical practice, strategies for safe handling thirst may be applied through identification, measurement, and assessment of this symptom with intentionality. These actions aim at alleviating this prevailing and unnecessary discomfort, in order to improve the quality of care for surgical patients.

Contributions:

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