

Original article

Assessment of the intensity and discomfort of the thirst of patients in the immediate postoperative period*

Avaliação da intensidade e do desconforto da sede de pacientes em pós-operatório imediato

Evaluación de la intensidad y malestar de la sed en pacientes en el postoperatorio inmediato

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Abstract

Objective: to evaluate the intensity and discomfort caused by thirst in patients in the immediate postoperative period. **Method:** exploratory-descriptive study developed with patients hospitalized in the post-anesthetic recovery room of a public hospital in Paraná. Individuals over 18 years of age, of both sexes, with preserved cognitive function, hospitalized from June 2021 to January 2022, were evaluated. Thirst intensity and discomfort were measured by specific scales. **Results:** 150 patients were evaluated, with a mean of 43.9 years. Most were male (65.3%), without comorbidities (68.7%), underwent spinal anesthesia (58%) and orthopedic surgery (59.3%), with ongoing serotherapy (92.7%). The mean surgery time was 1.5 hours and 14.6 hours of fasting; 72.7% of the sample verbalized thirst, and 37.6% complained spontaneously. **Conclusion:** the research participants presented moderate intensity (6.6) and discomfort (7.6) of thirst in the postoperative period, making it necessary to discuss institutional intervention protocols to reduce such event.

Descriptors: Thirst; Perioperative Nursing; Postoperative Period; Symptom Assessment; Recovery Room

Resumo

Objetivo: avaliar a intensidade e o desconforto provocados pela sede em pacientes em pós-operatório imediato. **Método:** estudo exploratório-descritivo, desenvolvido com pacientes internados na sala de recuperação pós-anestésica de um hospital público paranaense. Avaliaram-se indivíduos maiores de 18 anos, de ambos os sexos, com cognitivo preservado, internados de junho de 2021 a janeiro de 2022. A intensidade e o desconforto da sede foram mensurados por escalas específicas. **Resultados:** avaliaram-se 150 pacientes, com média de 43,9 anos. A maioria era do sexo masculino (65,3%), sem comorbidades (68,7%), submetida à raqui-anestesia (58%) e cirurgia ortopédica (59,3%), com soroterapia em curso (92,7%). O tempo médio de cirurgia foi 1,5 hora e 14,6 horas de jejum; 72,7% da amostra verbalizou sede, sendo que 37,6% queixaram-se de forma espontânea. **Conclusão:** os participantes de pesquisa apresentaram intensidade (6,6) e desconforto (7,6) moderados de sede no pós-operatório, tornando-se necessário discutir protocolos institucionais de intervenção para diminuir tal evento. **Descritores:** Sede; Enfermagem Perioperatória; Período Pós-Operatório; Avaliação de Sintomas; Sala de Recuperação

Resumen

Objetivo: evaluar la intensidad y el malestar causado por la sed en pacientes en el postoperatorio inmediato. **Método:** estudio exploratorio-descriptivo, desarrollado con pacientes internados en la sala de recuperación postanestésica de un hospital público de Paraná. Se evaluaron personas mayores de 18 años, de ambos sexos, con habilidades cognitivas conservadas, hospitalizadas entre junio de 2021 y enero de 2022. Se midió la intensidad y el malestar de la sed mediante escalas específicas. **Resultados:** Se evaluaron 150 pacientes, con una edad media de 43,9 años. La mayoría eran hombres (65,3%), sin comorbilidades (68,7%), con anestesia espinal (58%) y cirugía ortopédica (59,3%), con sueroterapia en curso (92,7%). El tiempo promedio de cirugía fue de 1,5 horas y 14,6 horas de ayuno; El 72,7% de la muestra verbalizó sed, con un 37,6% quejándose espontáneamente. **Conclusión:** los participantes de la investigación presentaron moderada intensidad (6,6) y malestar (7,6) de la sed en el postoperatorio, siendo necesario discutir protocolos de intervención institucional para la reducción de ese evento. **Descritores:** Sed; Enfermería Perioperatoria; Periodo Posoperatorio; Evaluación de síntomas; Sala de Recuperación

Introduction

Thirst is a multifactorial symptom, with a high prevalence in individuals in the immediate postoperative period (IPO).¹ It is defined as the desire to drink water and acts as a compensation mechanism for the reestablishment of the body's water balance, which may be associated with cultural, emotional conditions, individual and dietary habits.²⁻³

In the perioperative period, thirst is configured as a real discomfort of great magnitude, with the main characteristics reported by patients: dry mouth and tongue, dry lips, desire to swallow, lack of saliva, thick saliva and dry throat.⁴

There are some conditions associated with the surgical process that impose specific stressors on the patient and contribute to the worsening of the sensation of thirst, such as prolonged fasting time, anesthetic medications, orotracheal intubation, air-conditioned operating rooms, blood loss and emotional factors.⁵

Although there are studies that evaluate the discomfort of thirst, it is observed that this is a scarce practice in the care routine. The measurement of thirst is useful when performed in the IPO, being perceived by some patients as an intense discomfort, being more disturbing than hunger or pain itself.²

Thirst has a high incidence among IPO patients, however, a study developed by the Study and Research Group of the Perioperative Thirst (RGT) of the State University of Londrina showed that from 13% to 18% of people spontaneously verbalized this sensation, and it is necessary to use strategies to understand the silence of the surgical patient.³ The archaic culture that patients should be kept on an absolute fast during the perioperative period causes them to remain thirsty for an extended time.⁶ Interventions, when carried out, are usually punctual and isolated.³

Thirst presents identifiable signs that alter the physical, mental and social functioning of the patient, and can be identified and quantified through valid and reliable instruments available in the literature,⁵ however such resources are still little used in clinical practice due to the underestimation of thirst. Given its magnitude and the few efforts made to control thirst in the perioperative setting, the question is: what is the intensity and discomfort of the thirst of patients in the immediate postoperative period admitted to a public teaching hospital? In this context, the objective was to evaluate the intensity and discomfort caused by thirst in patients in the immediate postoperative period.

Method

This is a descriptive-exploratory study, with quantitative analysis of the data, developed with patients in IPO, admitted to a teaching hospital located in the western region of Paraná. This hospital is a reference in the region in the care of multiple trauma

patients, with 298 beds managed exclusively by the Unified Health System (SUS). It has a Surgical Center (SC) composed of five operating rooms and a Post-Anesthetic Recovery Room (PARR) with a capacity for six beds.

The inclusion criteria for the study participants were IPO patients admitted to the PARR from June 2021 to January 2022, aged 18 years or older, of both sexes. Patients with impaired cognitive capacity resulting from the anesthetic act were excluded from the research, since such a clinical condition would make it impossible to obtain the necessary information.

The data collection procedures were guided by two instruments validated to the Brazilian reality. The first is called the Visual Numerical Scale (VNS) and evaluates the level of thirst intensity, in which 0 = no thirst, 1 to 3 = little thirst, 4 to 6 = reasonable thirst, 7 to 9 = medium thirst and 10 = excessive thirst. This scale uses the individual's own perception to assess the "intensity of thirst".

The second instrument is called the Perioperative Thirst Discomfort Scale (PTDIS) and evaluates the discomfort caused by thirst. For the choice of its attributes, multiple factors were analyzed, having as a guiding axis the "discomfort of thirst".⁷ This scale evaluates seven attributes related to thirst and has scores ranging from zero to 14, in which 0 = no discomfort, 1 to 5 = mild discomfort, 6 to 10 = moderate discomfort and 11 to 14 = intense discomfort.⁷⁻⁸ Data collection was carried out in two distinct and subsequent stages: in the first, patients who were hospitalized in the PARR were consulted about their interest in participating in the study. Subsequently, information was obtained to characterize the participants (gender, age, presence or absence of comorbidities, type of anesthesia, surgical specialty, fasting time, duration of surgery and presence of ongoing serotherapy); and subsequently, the VNS and PTDIS scales were applied to assess the intensity and discomfort caused by thirst, respectively.

For data analysis, descriptive variables (mean and standard deviation for quantitative measures) and absolute and relative frequency (for qualitative measures) were used in order to evaluate the general aspects of patients regarding the intensity and discomfort of thirst, as well as the presence or absence of spontaneous complaint of such symptom. The graphical analyses were produced in order to assist in the

evaluation of the sample data. The regression trees were constructed with the variables VNS and PTDIS to better understand the relationship of discomfort and intensity of thirst in relation to the other variables raised in the research.

The statistical analyses were developed in the R Core Team software,⁹ which in addition to the basic functionalities also used the package "rpart"¹⁰ and "rpart.plot"¹¹ to develop the model and graphs of the regression trees.

This research took place following the ethical standards required in accordance with resolutions 466/2012, 510/2016 and 580/2018, of the Ministry of Health, obtaining approval from the Research Ethics Committee, CAAE number: 50066815.8.0000.0107, opinion 4.724.388, on May 20, 2021.

Results

The study sample consisted of 150 patients, predominantly male (65.3%), without comorbidities (68.7%), undergoing orthopedic surgery (59.3%), under spinal anesthesia (58%) and with the presence of ongoing serotherapy (92.7%) (Table 1). The mean age of the patients was 43.9 (± 16.6) years; the mean fasting time was 14.6 (± 5.2) hours; and the mean surgery time was 1.5 (± 0.9) hours (Table 2).

It is noteworthy that 72.7% (n=109) of the patients were evaluated with thirst, however 37.6% (n=41) had a spontaneous complaint of such an event (Table 1). The patients evaluated presented moderate intensity (6.6 \pm 2.7) and moderate discomfort caused by thirst (7.6 \pm 3.9) (Table 1).

Table 1 - Characterization of participants and evaluation of thirst according to spontaneous complaint, according to the Verbal Numerical Scale (VNS) and Perioperative Thirst Discomfort Scale (PTDIS). Cascavel, 2022 (n=150)

| Variables | Total %(n) | Had spontaneous complaint %(n) | VNS* (0 to 10) [‡] | PTDIS [†] (0 to 14) [‡] |
|-----------------------|---------------|---|--------------------------------|--|
| Gender | | | | |
| Female | 34.7(52) | 21.1 (11) | 5 \pm 3.8 | 5,8 \pm 4,6 |
| Male | 65.3 (98) | 30.6 (30) | 5 \pm 3.4 | 6 \pm 4,4 |
| Comorbidities | | | | |
| None | 68.7 (103) | 30.1 (31) | 5 \pm 3.5 | 5,9 \pm 4,3 |
| Arterial Hypertension | 18 (27) | 18.5 (5) | 4.4 \pm 3.7 | 5,6 \pm 5 |

| | | | | |
|--------------------------------------|------------|------------|-----------|---------|
| Diabetes Mellit(t)us | 13.3 (20) | 10 (2) | 5.2±3.2 | 7,1±4,6 |
| Others | 18.7 (28) | 17.9 (5) | 4.2±3.8 | 4,5±4,6 |
| Anesthesia | | | | |
| Blockage | 3.3 (5) | 20 (1) | 5±4.1 | 7,8±5,2 |
| General | 18. (27) | 25.9 (7) | 5.7±3.7 | 6±4,1 |
| General + spinal | 6.7 (10) | 20 (2) | 5.2±3.2 | 6,1±3,8 |
| Spinal | 58 (87) | 31 (27) | 5±3.6 | 6,1±4,8 |
| Sedation | 14 (21) | 19 (4) | 4±3 | 4,3±3,7 |
| Surgical specialty | | | | |
| Orthopedics | 59.3 (89) | 29.2 (26) | 5±3.5 | 5,8±4,7 |
| General | 24.7 (37) | 27 (10) | 5±3.6 | 5,8±4,1 |
| Blood vessel | 4.7 (7) | 28.6 (2) | 6.6±4 | 8±5,6 |
| Gynecology | 4 (6) | 33.3 (2) | 5±4.5 | 6,8±3,8 |
| Urology | 2.7 (4) | 25 (1) | 5±3.6 | 4,7±4,1 |
| Others | 4.7 (7) | - (0) | 4±2.9 | 5,6±4,0 |
| Presence of serotherapy | 92.7 (139) | 92.7 (139) | 28.1 (39) | 5.1±3.5 |
| Patient evaluated with thirst | 72.7 (109) | 72.7 (109) | 37.6 (41) | 6.6±2.7 |
| Total | 100-150 | 100 (150) | 27.3 (41) | 5.0±3.5 |

*Visual Numerical Scale. †Perioperative Thirst Discomfort Scale. ‡Mean ± standard deviation

Table 2 - Mean and standard deviation according to general aspects and spontaneous complaint of thirst. Cascavel, 2022 (n=150)

| Variables | Total | Spontaneous thirst complaint | |
|------------------------|----------|------------------------------|------------|
| | | Yes | No |
| Fasting time (hours)* | 14.6±5.2 | 14.6±4.4 | 14.6±5.5 |
| Surgery time (hours)* | 1.5±0.9 | 1.7±0.9 | 1.4±0.8 |
| VNS† | 5±3.5 | 7.9±2.1 | 3.9±3.3 |
| PTDIS‡ | 5.9±4.5 | 9.6±3.5 | 4.5±4 |
| Total patients# | | 27.3 (41) | 72.7 (109) |

*(Mean±standard deviation). †Visual Numerical Scale. ‡Perioperative Thirst Discomfort Scale

When developing the regression trees for the grade assigned in the VNS (Figure 1), the information that entered the model was to be evaluated with thirst, spontaneous complaint of thirst, type of anesthesia and fasting time (in hours). The model was estimated with a mean absolute error of 1.12 points in the VNS (ranging from 0 to 10). It is noteworthy that, among patients who had a spontaneous complaint of thirst, the highest scores on the VNS (which indicate greater thirst intensity) were attributed to fasting time being equal to or greater than 12 hours (×8.3 points).

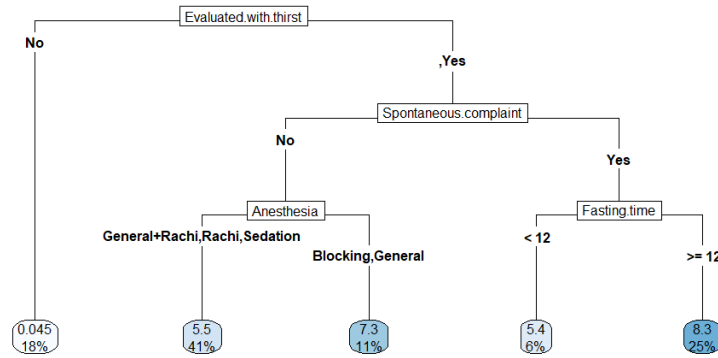


Figure 1 - Regression tree for the VNS response variable

Note: mean absolute error of 1.12 point and truncated complexity parameter at 0.02.

For the regression tree of the score assigned in PTDIS (Figure 2), the information that entered the model was to be evaluated with thirst, to have spontaneous complaint of thirst, age (in years) and time of surgery (in hours). The model was estimated with mean absolute error of 2.31 points in PTDIS (ranging from 0 to 14). It is noteworthy that, among patients who had spontaneous complaints of thirst, the highest scores on PTDIS (which indicate greater discomfort caused by thirst) were attributed to surgery time being equal to or greater than 2.2 hours (x 12 points).

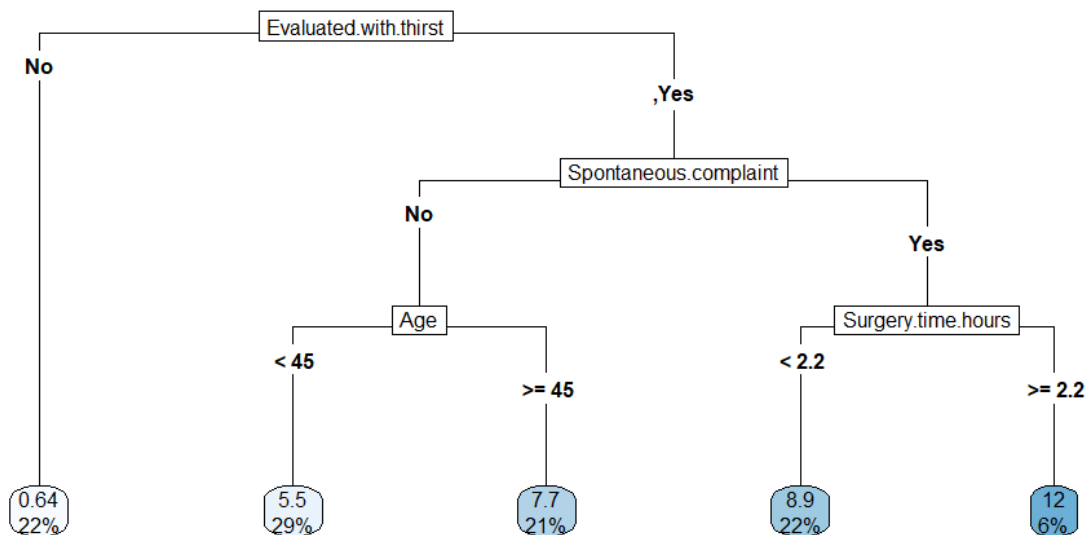


Figure 2 - Regression tree for the PTDIS response variable

Note: mean absolute error of 2.31 points and complexity parameter truncated by 0.02.

Discussion

The study observed the predominance of young adult patients (mean of 43.8 years), without comorbidities, male and in IPO of orthopedic surgery. Similar data were pointed out in a research developed in a hospital in northeastern Brazil, a reference in trauma care, which identified a higher frequency of male surgical patients (60.2%) of productive age (mean under 50 years).¹² The high number of hospitalizations of male patients related to trauma may be related to their work activities, greater exposure to environmental risk, negligent health culture and violent behavior.¹²⁻¹³

The fact that orthopedics is the most frequent surgical specialty can be attributed to the profile of the hospital investigated, which is a regional reference for medium and high complexity traumas. The number of surgeries of the musculoskeletal system registered in the information system of the Brazilian Ministry of Health (DATASUS) pointed out that this specialty occupied the second place in total number of visits between 2015 and 2020.¹³⁻¹⁴

Spinal anesthesia was the anesthetic modality with the highest frequency. This finding can be explained by the fact that this type of anesthesia is widely used in pelvic and lower limb surgeries, especially orthopedic surgeries.¹⁵ The patient undergoing spinal anesthesia remains conscious during the surgical procedure and some physiological (bradycardia, hypotension and low oxygen saturation) and emotional (fear, anxiety) reactions tend to intensify the sensation of dry mouth and thirst.¹⁵ The administration of oxygen for prolonged periods, the administration of opioids and anticholinergics, blood loss and the permanence of the open oral cavity during surgery contribute to the increase of the sensation of thirst in the IPO.^{3,16}

The mean duration of surgery was 1 hour and 50 minutes. It is noteworthy that patients who had spontaneous complaints of thirst had a longer mean surgical time (1.7 hours) than those who did not spontaneously complain of thirst (1.4 hours). The prolonged intraoperative time infers the loss of body fluids and temperature due to environmental exposure, corroborating the increase in the sensation of thirst.¹⁷

It was observed in the study that almost all of the patients evaluated had ongoing serotherapy in the IPO (92.7%). The use of adjuvant therapies such as serum therapy, when used appropriately, is a safe protective measure to minimize perioperative thirst.¹⁷

This investigation identified that the mean preoperative fasting time of surgical patients was high (14.6 hours). Prolonged fasting time can occur for several reasons, among them, communication error, delay in the beginning of surgery, transfer of surgical schedule, postponements of the procedure to another period of the day, surgical cancellation, delay in prescribing the return of the diet in the IPO, among others.¹⁸ Both prolonged fasting and drugs used during the intraoperative period contribute to the occurrence of biochemical reactions that trigger and intensify thirst, which can be characterized by intense discomforts.¹⁹

The discomfort of thirst is real and considered a stressor to the individual.²⁰ Drinking fluids in times of thirst is a basic human need, although he rationally understands the need for fasting, it does not reduce his discomfort and suffering.²⁰ It is common for patients to fast for prolonged periods, even if new scientific evidence demonstrates that reducing total fasting time or maintaining clear fluid intake up to two hours before surgery does not increase the risk of morbidity associated with anesthesia.²⁴ Studies indicate that the ingestion of a liquid solution enriched with carbohydrate provides the preoperative patient with greater satisfaction, less irritability, reduced vomiting, increased gastric pH and, mainly, a lower organic response to surgical stress.^{18,21}

A study conducted with surgeons specialized in bariatric surgery investigated the preoperative fasting time prescribed for solids and liquids. Verbal responses were compared with records in medical records. Interviews indicated that it was routine to prescribe eight hours of fasting for solid foods and three hours of fasting for liquids. However, the mean fasting time recorded in the medical records was twelve hours for solid foods and ten hours for clear liquids.²¹⁻²² In practice, fasting prescriptions are not individualized according to the different types of food and the fasting time goes beyond what is prescribed.¹⁸

The identification of perioperative thirst is based on the individual perception and spontaneous verbalization of the patient. This research verified that 72.7% of the investigated patients were evaluated with thirst, however just over a third of the study sample (37.6%) verbalized being thirsty spontaneously. Similarly, two other Brazilian

studies also identified a high incidence of patients with IPO thirst and low spontaneous complaint of said event.^{3,12}

One of the reasons that can lead the patient not to spontaneously complain of thirst is the institutional culture about the need to maintain fasting at all costs until medical clearance in the postoperative period.^{4,6} It is noteworthy that individuals adopt the “grateful patient” behavior and tend not to complain or underestimate their thirst threshold. Despite the negative repercussion, the dimension of cultural interference in its perception of perioperative thirst and its willingness to communicate it to the team is still unknown.^{4,6}

In general, the results of the research showed that the patients evaluated presented moderate intensity and moderate discomfort caused by thirst in the IPO. During data collection, it was found that some patients had difficulty in grading the discomfort and intensity of thirst.

The literature points out that there are safe and low-cost strategies to minimize patient thirst in the IPO.^{2-3,23-24} A study that evaluated the effect of chewing gum on thirst in adults showed that the use of gum reduced discomfort in individuals with restricted fluid intake by increasing salivary flow, relieving xerostomia and reducing thirst intensity.²³ Scope review research showed that the supply of frozen liquids (physiological solution such as popsicle) and gauze cube soaked in water and gel chips were more efficient in reducing thirst when compared to liquid solutions.² Similarly, the use of menthol popsicles has also been shown to be significantly effective in reducing thirst.³ Another innovative strategy implemented in a recent randomized clinical study was the use of carbohydrate popsicles in the preoperative period, which obtained promising results both in reducing the preoperative fasting time and in reducing the discomfort of postoperative thirst, thus corroborating the increased assertiveness of the protocol of Acceleration of Postoperative Total Recovery (ACERTO).²⁴

Regarding the limitations of the research, it is noteworthy that the low health literacy of the participants may have contributed to the misunderstanding of some levels (VNS) and items (PTDIS) of the scales used to measure thirst in the IPO. During data collection, it was noticed that some patients did not use the same criteria to answer the questions of the scales (VNS and PTDIS), since they indicated high grades on one scale and, at the same time, indicated low grades on another.

Finally, knowing the intensity and discomfort caused by thirst in the IPO contributes to minimize such an event. This study collected data that allow promoting the change of institutional culture about fasting, discuss intervention protocols for thirst in the postoperative period and provide safer postoperative care.

Conclusion

The research identified that the prevalence of thirst in IPO patients was high, since more than half of the participants evaluated were thirsty, however about one third of this clientele had spontaneous complaints of such an event.

The investigated individuals presented moderate intensity and moderate discomfort caused by thirst in the IPO. Among the factors that corroborated these results, the high fasting time and the high intraoperative time stand out.

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