



Assessment strategies for the management of thirst in the post-anesthetic recovery room*

Avaliação de estratégias no manejo da sede na sala de recuperação pós-anestésica

Evaluación de estrategias en el manejo de la sed en la sala de recuperación post-anestésica

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ABSTRACT

Objective: To evaluate simple and safe strategies to mitigate thirst in the immediate postoperative period (IPO). **Methods:** A quantitative, experimental, cross sectional study with a sample of 90 patients. Those who presented with thirst were divided randomly into two groups: water or ice. **Results:** 96 (75%) reported thirst. The preoperative fasting period varied from 8 to 37 hours, and there was no association between the type of anesthesia, bleeding, fasting time and thirst. The intensity of initial thirst was 5.1 for the water group, and 6.1 for the ice group. The methods tested were effective in relieving thirst in the IPO. The ice group had a final intensity of 1.51, as compared to 2.33 in the water group. Two (2.2%) patients experienced vomiting during the study. **Conclusion:** Thirst is a real discomfort and causes great suffering in the patient. This study indicated viable and safe strategies to manage thirst in the IPO.

Keywords: Thirst; Perioperative nursing; Recovery room

RESUMO

Objetivo: Avaliar estratégias simples e seguras para mitigar a sede no pós-operatório imediato (POI). **Métodos:** Estudo quantitativo, experimental, de corte transversal, com amostra de 90 pacientes. Aqueles que apresentaram sede foram divididos aleatoriamente em dois grupos, Água ou Gelo. **Resultados:** 96 (75%) relataram sede. O jejum pré-operatório variou de 8 a 37 horas e não houve associação entre o tipo de anestesia, sangramento, tempo de jejum e sede. A intensidade média inicial de sede foi de 5,1 para o grupo Água e 6,1, ao grupo Gelo. Os métodos experimentados mostraram-se eficazes em aliviar a sede no POI. O grupo Gelo teve intensidade final de 1,51 contra os 2,33 de grupo Água. Dois (2,2%) pacientes apresentaram vômitos durante a pesquisa. **Conclusão:** A sede é um desconforto real e gera grande sofrimento ao paciente. Este estudo indicou estratégias viáveis e seguras no manejo da sede no POI.

Descritores: Sede; Enfermagem perioperatória; Sala de recuperação

RESUMEN

Objetivo: Evaluar estrategias simples y seguras para mitigar la sed en el postoperatorio inmediato (POI). **Métodos:** Estudio cuantitativo, experimental, de corte transversal, realizado con una muestra de 90 pacientes. Aquellos que presentaron sed fueron divididos aleatoriamente en dos grupos, Agua o Hielo. **Resultados:** 96 (75%) relataron sed. El ayuno pre-operatorio varió de 8 a 37 horas y no hubo asociación entre el tipo de anestesia, sangrado, tiempo de ayuno y sed. La intensidad promedio inicial de sed fue de 5,1 para el grupo Agua y 6,1, al grupo Hielo. Los métodos experimentados se mostraron eficaces para el alivio de la sed en el POI. El grupo Hielo tuvo una intensidad final de 1,51 contra los 2,33 del grupo Agua. Dos (2,2%) pacientes presentaron vómitos durante la investigación. **Conclusión:** La sed es un desconforto real y genera gran sufrimiento al paciente. En este estudio se indicaron estrategias viables y seguras en el manejo de la sed en el POI.

Descriptores: Sed; Enfermería perioperatoria; Sala de recuperación

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INTRODUCTION

Thirst is a real discomfort presented by most of the patients in the immediate postoperative period (IPP), while they remain fasting. Studies depict that in the patient's perception, this discomfort is intense and results in increased anxiety, dehydration, irritability, weakness and despair⁽¹⁻⁴⁾.

Diverse factors are responsible for the sensation of thirst in the IPP, including the operative fast, which influences gastrointestinal motility and aims to reduce the risk of regurgitation of gastric contents, thus preventing pulmonary aspiration^(5,6).

Motility adapts to the situation in which the individual finds himself, that is, a person who is fasting has adequate motility, however his situation differs from that of another who has just eaten, and therefore has greater motility⁽⁷⁾.

The preoperative fasting is justified in the prevention of complications related to anesthesia, such as postoperative nausea and vomiting, whose overall incidence remains between 20% and 30%. In the at-risk population, these numbers may reach 70%, and 0.2% of patients may present them as intractable in the postoperative period⁽⁸⁾.

The risk for nausea and vomiting may be related to three factors: the patient, anesthetic techniques and the surgical procedure⁽⁸⁾. Visceral mobilization and use of anesthetic or analgesic medications in abdominal surgeries may also result in nausea and vomiting⁽⁹⁾.

Although pulmonary aspiration is an infrequent event, it deserves significant attention, because it results in a devastating impact for the individual and is linked to high morbidity and mortality⁽¹⁰⁾. However, the fear of this complication leads to maintenance of the fast, often for prolonged or even excessive periods, contrary to well-documented studies in which the need for absolute preoperative periods of fast were reduced, without deleterious effects to patients^(2,5).

The *American Society of Anesthesiologists* (ASA) has made recommendations regarding preoperative fasting. For liquids without residue, a two-hour fast is recommended for all ages. In the case of a soft diet and milk, a six-hour fast is accepted for children and adults. As for meals that include fried foods, fats or meat, it is recommended to fast for eight hours or more^(5,10).

In an individual undergoing a preoperative fast, the body normally uses stored water, because organic reactions are not interrupted, only the intake of liquids and solids. What is observed in practice in many health institutions, however, is that the patient remains fasting for much longer, reaching a mean of 12 to 16 hours, which causes an increase in metabolic response to trauma following the surgery^(2,4,11).

The drugs used can also cause dryness of the oral mucosa in patients in the postoperative period^(12,13).

Among them, *atropine* deserves special attention, because it competes with the action of acetylcholine on the muscarinic receptors, causing relaxation of bronchial smooth muscle, decreasing gastric, bronchial and salivary secretion, and causing dry mouth, which leads the individual to feel thirsty^(12,14).

Blood loss also influences the sensation of thirst in the IPP, because there is a loss of electrolytes, which is closely related to the amount of water present in the body. During the transoperative period, the patient suffers from blood loss that can result in a drop in arterial blood pressure. Hypotension activates the production of renin and all chemical reactions until it yields angiotensin II, which results in a thirst response in the individual, in order to normalize the whole process^(7,15).

No studies were found that reflected an approach to thirst on the patient with thirst in the IPP. This study was motivated by the experience of discomfort from thirst that one of the authors had when experiencing a surgical procedure, and it is justified by the observation of the high incidence of patients who present with thirst in the IPP. In the institution studied, we noted the use of empirical practices in the management of thirst, but in the form of non-standardized care, which led us to investigate the incidence of this problem, as well as the efficacy of the administration of ice and water to reduce thirst.

The general objective of this study was to evaluate strategies to mitigate thirst in the IPP through simple and safe methods that provide the patient with relief of this discomfort. The specific objectives were: to show the incidence and intensity of thirst in surgical patients and to characterize the patient and the surgical procedure, type of anesthesia, duration of preoperative fasting and blood loss; to evaluate the result of the administration of small doses of water or ice chips on the intensity of the sensation of thirst and to ascertain whether there are differences between the efficacy of these two strategies.

METHODS

This was a quantitative, experimental, cross sectional study conducted in a large university hospital, a regional reference center for burns and trauma, which only served patients in the Unified Health System.

The initial study population consisted of 133 patients in the Post- Anesthesia Care Unit (PACU) who underwent surgical procedures during the research period. The inclusion criteria for the composition of the sample included: patients aged between 18 and 70 years, with ASA I, II or III, undergoing any surgical procedure; patients were alert / oriented, with localized pain, glottal reflex was present, spontaneous breathing on room air with O₂ saturation greater than 94%; patients were

able to verbalize thirst in the IPP and authorization was obtained from the responsible anesthesiologist to administer water or ice; patients accepted and signed the Terms of Free and Informed Consent preoperatively.

Data collection occurred during the period of June and July, 2010. Collection was performed using an instrument developed by the authors based on the objectives proposed in this study, which was divided into three parts: the first, to understand demographics and hospitalization of the patient, followed by the questionnaire with data relevant to the IPP (surgery date, time of entry into the operating room (OR), type of surgery, type of anesthesia, use of medications that interfere with the sensation of thirst, complications during surgery, and departure time from the OR). The third included the period of recovery from anesthesia and determination of the verbalization of thirst and its measurement, authorization by the anesthesiologist for the administration of water or ice, and the consequent administration of these to the patient. We conducted a pilot test with four patients that enabled us to make some adjustments to the instrument.

In the preoperative period, in cases that met our inclusion criteria, patients were approached and invited to participate in the research. In the IPP, as soon as the patterns of oxygen saturation, level of consciousness, the glottal reflex and spontaneous breathing had recovered, the patient was questioned about the presence of thirst. If the answer was affirmative, the anesthesiologist performed an additional evaluation and authorized or prevented the administration of water or ice. For patients who received water or ice, they were divided into two groups: the Water Group and the Ice Group. For the first patient, we sorted him into one group, and the others followed so that the order of the group was always different from its predecessor, thus presenting a sample containing 45 patients belonging to the Water Group and 45 to the Ice Group.

The water was administered in doses of two milliliters (2 ml) at room temperature, using a syringe. For administration of ice, we used 2ml forms in a rectangular shape for making the ice, which was placed in the patient's mouth to completely dissolve. The researchers of this study recommended the use of 2 ml of ice or water, as this is a small amount and it was possible to have greater control over any complications.

We found a validated scale for measuring thirst, originally designed to measure characteristics of thirst in patients undergoing hemodialysis. This scale, however, could not be used because it required that the patient was in total control of his reflexes and could report the intensity, frequency and time of perception of thirst⁽¹⁶⁾, which would be difficult for the patient under the influence of anesthetic drugs.

In order to measure the intensity of thirst in surgical patients, we used a numerical scale, the same that is applied for the measurement of pain⁽¹⁷⁾. Both pain and thirst are subjective discomforts, thus using this scale proved to be adequate to the objectives of this study. The scale has intensities of 0-10, with 0 being no thirst, and 10 being the most intense thirst that the patient has experienced. The intensity of thirst was measured using the range of 1 to 10.

Before the first administration of water or ice, the patient was questioned about the intensity of his thirst. The question was repeated in the first minute after administration and 5 more times, beginning at 5 minutes and completing at 25 minutes. If the level reported was the same or there was a worsening of thirst, or if the patient asked for a little more water or ice, we administered one more dose, at least 10 minutes after the prior dose, and in the absence of complications during this period. To evaluate the intensity it was determined the moments M1 (initially before the first dose), M2 (before the second dose), FID (final intensity before the discharge of the patient from the RR) and DIT (difference in intensity of thirst, between final intensity and intensity before the second dose). These moments were defined by the authors, because we were unable to find any inference in the literature presenting this type of care.

Data were analyzed with the aid of the program, *Statistical Program for the Social Sciences* (SPSS), version 17.0, for *Windows*, to perform statistical analyses of mean, standard deviation, an index of significance in this study, with $p < 0.5$, and tests of association of Pearson *Chi-Square Likelihood Ratio* and the Mann-Whitney test, presented in table and graph format.

All steps of this work followed the guidelines of Resolution n°. 196, which regulates research involving human beings. Data collection was initiated only after the project was approved by the Committee of Ethics in Research of the research institution (CONEP registration n°. 268/2010).

RESULTS

Of the initial population of 133 patients, three (2.5%) did not agree to participate in the research, and two (1.5%) were admitted to the ICU, due to complications during surgery. Of the 128 participants, 96 (75%) reported feeling thirsty during the IPP. Even with the inclusion criteria met, six patients did not receive permission to participate in the survey by the responsible anesthesiologist. Thus, the final sample for this study was composed of 90 patients, and they were divided into two groups of 45 patients, called Water and Ice; 57 (63.3%) were of the female gender and 33 (36.7%) were male.

The anesthesia techniques were grouped into four categories, with the anesthetic block being the most represented in this study, with 25 (27.8%) patients in the Water Group and 24 (26.7%) in the Ice Group. In the Balanced General Anesthesia, there were 13 patients (14.4%) in the Water Group and 16 (17.8%) in the Ice Group. There were two (2.2%) patients with Combined General Anesthesia in the Water Group and one patient in the Ice group; with sedation, there were five (5.6%) patients in the Water Group and four (4.4%) belonging to the Ice Group.

The Pearson *Chi-Square* and *Likelihood Ratio* correlation coefficients between the incidence of thirst and anesthesia technique were not statistically significant ($p = 0.477 / 0.292$, respectively), indicating that, regardless of anesthesia technique, patients presented with thirst.

Participating patients were classified as ASA I to III, and two patients assigned to the Water Group were not classified by the anesthesiologist. The ASA classification I was the most prevalent, representing 21 (46.7%) and 19 (42.2%) patients belonging to the Water Group and the Ice Group, respectively. A patient with an ASA IV assessment was included in the survey by presenting intense thirst, by request of the anesthesiologist.

Pearson *Chi-Square* and *Likelihood Ratio* correlation tests between the ASA and thirst were not statistically significant ($p = 0.730 / 0.602$ respectively), showing that thirst did not correlate with the pre-anesthetic risk classification.

The results for the amount of blood loss indicated a predominance of patients with small blood loss, totaling 40 (88.9%) and 39 (87.7%) patients belonging to the Water and Ice Groups, respectively.

The duration of fasting ranged from 8 to 37 hours in elective and emergency surgery. The frequency of patients by duration of fasting period can be observed in Figure 1.

Regarding the use of atropine by the anesthesiologist, five (11.1%) patients in the Water Group, and 13 (28.9%) in the Ice Group received this medication. The intensity of thirst reported by these patients was high, which meant that the mean intensity of thirst within the Ice Group increased.

Complications detected were related to the episode of vomiting in the IPP, with an incidence of two (2.2%) patients, representing one patient in each group.

The data in Table 1 refer to the intensity of thirst reported by the patient, after administration of water or ice.

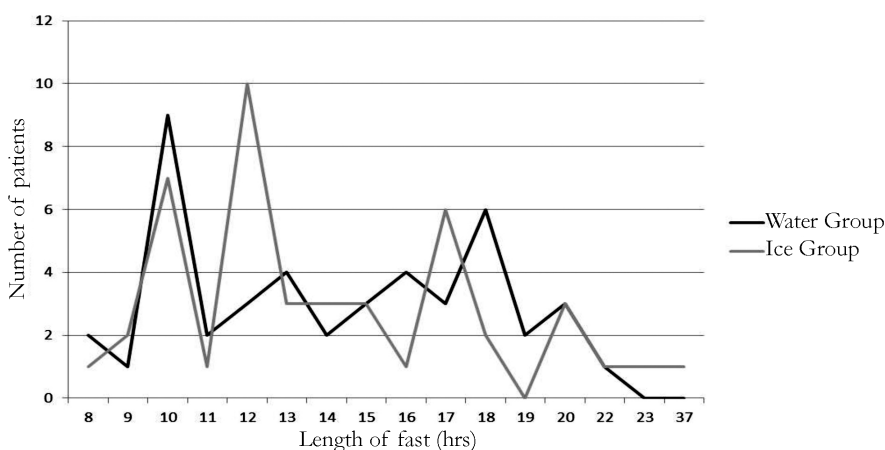


Figure 1. Distribution of patients in Water and Ice Groups in relation to the time of preoperative fasting. Londrina (PR), 2010.

Table 1. Level of intensity of thirst reported before the administration of water or ice (initial), before the second dose of water or ice, and the last thirst intensity reported by the patients in the different groups. Londrina (PR), 2010

Groups	Water Group						Ice Group					
	M1		M2		FID		M1		M2		FID	
Intensidade	N	%	N	%	N	%	N	%	N	%	N	%
Zeroed	-	-	-	-	21	46.7	-	-	-	-	24	53.3
Light (1-3)	10	22.2	14	47.0	11	24.4	4	8.9	14	40.0	14	31.1
Moderate (4-7)	30	66.7	10	33.3	7	15.6	28	62.2	16	45.7	4	8.9
Intense (>8)	5	11.1	6	20.0	6	(13.3)	13	28.9	5	14.3	3	6.7
TOTAL	45	100	30*	100*	45	100	45	100	35*	100*	45	100

*Total number of patients taking two or more doses.

Only the Water Group, at the time of initial evaluation showed homogeneous distribution. Thus, we used the nonparametric Mann-Whitney test to assess differences in intensity of thirst based on three crucial moments, as shown in Table 2. We can observe an important and consistent fall in the intensity of thirst in both groups, with little variation on the standard deviation.

Table 2. Evaluation of the fall of thirst sensation by group, mean and standard deviation. Londrina (PR), 2010

	N	Mean	Standard Deviation
M1 Water	45	5.11	2.08
M2 Water	45	3.60	2.97
DIT Water	45	2.33	3.15
M1 Ice	45	6.13	2.18
M2 Ice	45	3.82	2.77
DIT Ice	45	1.51	2.27

There was a significant difference in the first moment, before the administration of water or ice, when the sensation of thirst was higher in the Ice Group than in the Water Group ($p = 0.2344$). After the first dose of water or ice, there was an important and significant fall in intensity of thirst of both the Water and Ice groups, with no significant difference of this magnitude between the two ($p = 0.56$), which can be seen in Figure 2.

Analyzing the DIT (difference in intensity between final intensity of thirst and intensity prior to the second dose), a consistent decrease in the intensity of thirst was again noticed in both groups, with no statistically significant difference between the two.

Table 3. Mann-Whitney statistical tests comparing the reported intensity of thirst before the first dose to the reported intensity of thirst before the second dose and comparing the intensity of the second dose with the final intensity reported by the patient. Londrina (PR), 2010

	N	Z	P
M1	45	-2.27	0.02*
M2	45	0.57	0.56 ns
DIT	45	0.96	0.33 ns

* Tests considered significant at $p < 0.50$

We observed in the data of Table 3 that the M1 and DIT have a significant p for the research, showing that there was decreased sensation of thirst independent of the administration of water or ice.

DISCUSSION

As previously mentioned, the two groups in this study had similar demographic characteristics, so that had no influence on the research results. Thus, it was noticed that thirst in the IPP may arise from a variety of reasons, including time of fasting that triggers the homeostatic mechanism of thirst, anesthesia, drugs used, bleeding during surgery, anxiety and nervousness regarding the outcome of the surgery, and pain, among others.

The discomfort of thirst is real and causes stress to the patient, assaulting him. Ingesting liquids in times of thirst is a basic need of any individual; even if the patient understands rationally the necessity of the fast, this does not diminish his discomfort and suffering. This discomfort is reported by other studies as a major stressor in the view of the patient in postoperative cardiac surgery units, and was classified as 5th place among 34 stressors⁽³⁾.

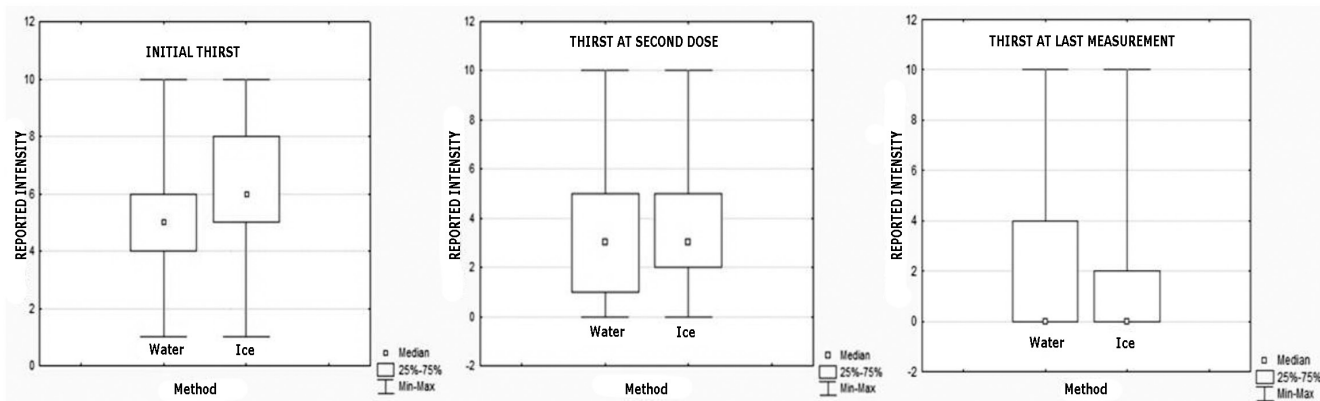


Figure 2. Distribution of patients in Water and Ice Groups according to the intensity of thirst reported in the initial stage of evaluation (T1), before the second dose (M2) and at the end of measurement (FID). Londrina (PR), 2010.

During data collection, the researchers noticed that in some instances, the nursing staff ignored the request for water or failed to inform the patient that he could not receive water because he had to maintain the fast. This issue contradicts efforts and studies that emphasize the promotion of humanized care based on effective communication between patient-staff in order to share anxieties, fears and insecurities experienced by the patient⁽¹⁸⁾.

Regarding the anesthesia procedure, there was no statistical significance, because 96 (75%) patients reported having thirst regardless of anesthesia technique. The medications used were also analyzed in this study, particularly atropine, due to their mechanisms of action that can cause a decrease in saliva and lead the patient to feel thirsty⁽¹²⁻¹⁴⁾.

In the study hospital, it is very common for patients to remain fasting for prolonged periods, even though new scientific evidence demonstrates that reducing the total duration of fasting or maintaining fluid intake alone does not cause an increased risk of morbidity associated with anesthesia⁽⁶⁾. The ASA recommends fasting from clear liquids, such as water, for only 2 hours^(1,2,5,10). But it is clear that the fasting time in this institution is much higher, reaching absurd times, such as one of the patients in the Ice Group, who was in a preoperative fast for 37 hours. The duration of prolonged fasting has been reported in other public teaching hospitals, with a mean of fasting for 16 hours, ranging from 8 to 27 hours⁽²⁾.

It was observed that the intensity of thirst reported by the Ice Group was higher at first, however, after the first administration of both water and ice, the two groups were homogeneous with respect to the intensity of thirst ($p = 0.568422$). When analyzing the result, it was observed that the strategy of ice brought the patient from a initial level of higher intensity to one that was inferior to the Water Group, although it was not statistically significant. There are indications, however, that both of the alternative strategies are effective in reducing the sensation of thirst.

It was not possible to correlate the number of doses administered for each strategy with the reduction in intensity of thirst. It is argued, however, that the proposed objective in this study was to evaluate the reduction in thirst safely, regardless of the number of doses administered.

Studies demonstrate that the overall incidence of nausea and vomiting is between 20% and 30%⁽⁸⁾. In this study, we found a very low rate of vomiting as an adverse effect, (2.2%), knowing that normally, it is usually the principal motive for maintaining the patient with thirst. Episodes of nausea and vomiting are related by some authors with the use of certain medications, with the use of opioids in the postoperative period, or

even visceral mobilization that occurs during surgery⁽⁹⁾. It was observed that of the two patients who presented with vomiting, one had undergone a hysterectomy and the other, a cesarean section: procedures during which visceral mobilization occurs.

A perhaps overly conservative approach makes the team treating patients in the IPP maintain patients in absolute fast for fear of complications such as pulmonary aspiration. This study indicated, in a preliminary manner that cannot yet be generalized, that after careful assessment of the individual patient, the administration of small amounts of water or ice may be secured to alleviate the patient's thirst without placing him necessarily at risk.

We could detect a need to implement protocols for evaluating the recovery of patients with thirst in the IPP. Assessment of level of consciousness, the ability to swallow, the O₂ saturation and respiratory rate, prior to administration of water or ice, can serve as a parameter for future studies corroborating the safety of this method.

CONCLUSION

The results of this study showed a very high incidence of thirst in the IPP in the PACU, and found that its intensity, when present, is high. Regardless of the surgical procedure, type of anesthesia and blood loss, the patients presented with thirst. As the minimum fasting time was found to be 8 hours, the results of this survey indicate that, with this time of fasting, 100% of patients reported having thirst. The strategies used to mitigate thirst, administration of ice chips and small quantities of water, after careful assessment were equally effective, although the group that was provided ice presented the sharpest drop in the intensity of thirst.

The unprecedented nature of this study is seen in three ways. In the first place, the measurement of thirst in the IPP, while the patient is still in the PACU, detecting that this discomfort is real, intense and sometimes more troubling than the pain itself, according to some patients. Secondly, the elaboration of a protocol, although not validated, which opens the way for the possibility of administering water or ice in small doses to the patient rather than simply ignoring the thirst altogether. Finally, this study evaluates and indicates two simple strategies, the administration of water or ice, which can be effective in alleviating the thirst of the patient in a steady manner, and increasing his comfort in the IPP.

Limitations of this study are the use of a sample that was small for generalization, and the lack of validated scales to measure thirst in the IPP, as well as evaluation protocols for the administration of water or ice. The results of this study indicated that patients required individualized care and pointed to the need for other studies

that help in understanding and managing this problem of thirst in the IPP.

Thirst is a subjective and individual experience; it has been little studied in practice. Quantitative data indicate some ways that need to be explored by methods that include the experiences and perceptions of the patient, in order to understand this phenomenon.

The inclusion of pain as the fifth vital sign is recent and very just, after long being overlooked. The results of this study alert us that thirst causes real suffering and, as with pain it is also subjective. It is necessary to stop simply ignoring it and move on to consider it as an important factor of discomfort in the IPP, a point to be valued, measured and mitigated.

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