

Evaluation of Thirst Symptoms in Patients Undergoing Abdominal Surgery

Abdominal Cerrahi Uygulanan Hastalarda Susuzluk Semptomunun Değerlendirilmesi

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Abstract

Thirst is a common symptom in surgical patients during the postoperative period and has a negative biopsychosocial impact on patients. The study was conducted to determine postoperative thirst symptoms and the factors affecting thirst in patients undergoing abdominal surgery. This descriptive study was conducted with the participation of 125 patients who were hospitalized in the general surgery clinic of a university hospital between September 3, 2023, and March 1, 2024, and who underwent abdominal surgery. Ethics committee and institutional permissions were obtained prior to the study, and the patients were informed about the study and gave written consent. 'Patient Information Form' and "Thirst Symptom Assessment Scale" were used for data collection. The data were analyzed using Mann-Whitney U test, Spearman Correlation Analysis and Kruskal-Wallis tests in SPSS 27.0 software. It was found that 60.0% of the patients were male, the mean age was 57.9±12.3 years and 51.2% had undergone intestinal surgery. The mean score on the Thirst Symptom Assessment Scale was found to be 10.2±5.7. It was found that the thirst status of the patients varied according to the presence of chronic disease (p=0.035), surgical procedure (p<0.001), and type of surgery (p<0.001). A positive correlation was found between preoperative thirst duration (p<0.001), and postoperative thirst duration (p=0.007) and the mean scores of the Thirst Symptom Assessment Scale. Thirst levels of patients undergoing abdominal surgery were found to be below average. The presence of chronic disease, type of surgical procedure, type of surgery, and preoperative and postoperative thirst duration were the factors affecting patients' thirst.

Keywords: Nursing, surgery, thirst

Özet

Susuzluk, cerrahi hastalarında postoperatif dönemde sık gözlenen bir semptomdur ve hastaları biyopsikososyal açıdan olumsuz etkilemektedir. Çalışma abdominal cerrahi uygulanan hastalarda susuzluk semptomu ve etkileyen faktörleri belirlemek amacıyla yürütülmüştür. Tanımlayıcı tipteki bu çalışma 3 Eylül 2023 - 1 Mart 2024 tarihleri arasında bir üniversite hastanesinin genel cerrahi kliniğinde yatarak tedavi edilen ve abdominal cerrahi işlem uygulanan 125 hastanın katılımıyla gerçekleştirilmiştir. Çalışma öncesinde etik kurul ve kurum izinleri alınmış ve hastalar çalışma hakkında bilgilendirilerek yazılı izinleri alınmıştır. Veri toplamada "Hasta Bilgi Formu" ve "Susuzluk Semptomunu Değerlendirme Ölçeği" kullanılmıştır. Veriler SPSS 27.0 programında Mann Whitney U testi, Spearman Korelasyon Analizi ve Kruskal Wallis testleri kullanılarak analiz edilmiştir. Hastaların %60,0'ının erkek ve yaş ortalamasının 57,9±12,3 olduğu ve %51,2'sine bağırsak cerrahisi uygulandığı saptanmıştır. Hastaların Susuzluk Semptomunu Değerlendirme Ölçeği puan ortalamaları 10,2±5,7 olarak belirlenmiştir. Hastaların kronik hastalık varlığına (p=0,035), uygulanan cerrahi işleme (p<0,001) ve ameliyat türüne (p<0,001) göre susuzluk durumlarının değişkenlik gösterdiği bulunmuştur. Ameliyat öncesi susuzluk süresi (p<0,001) ve ameliyat sonrası susuzluk süresi (p=0,007) ile Susuzluk Semptomunu Değerlendirme Ölçeği puan ortalamaları arasında pozitif yönlü bir ilişki saptanmıştır. Abdominal cerrahi ameliyat türü, cerrahi işlem türü ve ameliyat öncesi ve sonrası susuzluk süresi hastaların susuzluğunu etkileyen faktörlerdir.

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1. Introduction

Thirst, defined as the desire to drink water, is a subjective and distressing condition that is too important to ignore in cases where water deficiency threatens life (Silva et al., 2016; Conchon et al., 2015). In surgical patients, thirst affects the patient physiologically, psychologically and socially before, during and after surgery (Hüppe et al., 2013; Martins et al., 2017). The prevalence of postoperative thirst is reported to be 75% (Conchon et al., 2018).

Surgical patients state that thirst is a more disturbing symptom than hunger (Conchon et al., 2018; Silva et al., 2016). Patients are at risk for thirst due to preoperative and postoperative fasting periods that are longer than recommended, bowel preparation, endotracheal intubation, medications, fluid-electrolyte losses, bleeding, neuroendocrine responses to stress, anesthetic drugs, fear of vomiting and aspiration, and other factors. Reasons such as impairment in body fluid balance due to prolonged preoperative fasting period, losses in fluid volume due to bowel preparation, lack of adequate intravenous fluid supplementation, losses due to sweating because of high ambient temperature, use of anticholinergics to decrease salivation, restriction of postoperative fluid intake to prevent circulatory overload in cardiac surgeries increase the susceptibility of patients to thirst (Conchon et al., 2018; Gan et al., 2024; Martins et al., 2017; Nascimento et al., 2023; Rızalar et al., 2019; Sebaee & Elhadary, 2017). Dehydration causes patients to experience dehydration, anger and stress and negatively affects the postoperative recovery process (Sato et al., 2019; Tsai et al., 2022).

Although thirst triggers a relatively high number of complications and is more common than severe postoperative pain, it does not receive the same attention in terms of its importance in preventing distress (Hammer et al., 2024). Surgical patients frequently experience the complaint of thirst, but thirst is ignored by healthcare professionals (Clark & Archer, 2022; Conchon et al., 2018; Tsai et al., 2022). Thirst is not included in nursing diagnostic systems and very few methods are used by healthcare professionals to alleviate this condition (Moon et al., 2015; Öztaş et al., 2022; Sebaee & Elhadary, 2017). Since the evaluation of thirst experienced by patients by nurses is an important part of humanistic nursing care (Doi et al., 2021), this study aimed to evaluate the thirst symptoms of patients undergoing abdominal surgery.

2. Method

2.1. Aim of the Study

The purpose of this study was to evaluate the thirst symptoms of patients undergoing abdominal surgery.

2.2. Research Questions

-What is the thirst status of patients undergoing abdominal surgery?

2.3. Sample of Study

The descriptive study was conducted with the participation of patients who were being treated in the general surgery service of a university hospital. With an effect size of 0.3 (medium), a confidence level of 95% and a power level of 90%, the minimum sample size was determined to be 125 using the G* Power 3.1 program. IBM SPSS 27.0.1.0 (IBM Corp, Armonk, NY, USA) package program was used for coding and statistical analysis of the data. The population of the study consisted of patients hospitalized in the general surgery ward of a university hospital after surgery. The inclusion criteria were voluntary acceptance to participate in the study; being an adult; no visual, verbal, or auditory communication difficulties; no mental disability that would prevent answering the questions in the questionnaire; having undergone abdominal surgery under general anesthesia; being 8-96 hours postoperative; and having restricted oral intake. Patients who needed postoperative intensive care and developed complications were not included in the study. In the ward routine after general anesthesia, oral intake is kept restricted for the first 8 hours.

2.4. Data Collection and Tools

As a data collection tool, the Patient Information Form and the “Thirst Symptom Assessment Scale” (TSAS), which were prepared by the researchers after a literature review (Rızalar et al., 2019; Öztaş et al., 2022), were used.

2.4.1. Patient Information Form

The patient information form consisted of twelve questions inquiring about descriptive characteristics (age, gender, marital status, employment status, etc.), characteristics related to the surgical procedure (type of surgery and type of surgical intervention performed, etc.), and characteristics related to thirst (the number of hours after surgery, preoperative fasting, and thirst duration, etc.).

2.4.2. Thirst Symptom Assessment Scale

The TSAS, whose Turkish validity and reliability were established by Öztaş et al. (2022), is a 6-item, one-dimensional, four-point Likert-type questionnaire, and each statement is scored from 0 to 3. The response “Very much” is scored as 3 points, and the response “Not at all” is scored as 0 points. The total score of the TSAS ranges between 0 and 18, a higher score indicates greater thirst severity. There is no reverse item on the scale. The reliability coefficient was reported as 0.957 in the study of Öztaş et al. (2022). In this study, Cronbach's alpha was calculated as 0.816. The TSAS was used with written permission via e-mail.

2.4.3. Data Collection

Data were collected through face-to-face interviews between September 3, 2023, and March 1, 2024. Patients were informed and written consent was obtained prior to data collection. Data were collected during the period when the patients' oral intake was restricted (the first 8-96 hours postoperatively).

2.5. Ethical Aspects of the Study

Ethics committee permission (Date: 22.06.2023, Number: PR0465R0) and written permission (Date: 23.08.2023, Number: E-79056779-600-501827) were obtained from the Kırklareli University Rectorate Institute of Health Sciences Ethics Committee and the Trakya University Hospital administration, respectively.

2.6. Limitations and Strengths of Study

There are some limitations to the study. The results obtained are from a single center and reflect data only from patients who volunteered to be included in the sample. Therefore, it would be appropriate to interpret the results in light of these characteristics. Another limitation is that the amount of bleeding during surgery, fluid therapy, and laboratory findings that could affect the patient's thirst were not evaluated, which may have influenced the results. At this point, future studies should be planned that also evaluate these characteristics, which may impact patients' thirst levels. The results of this study are important for evaluating thirst symptoms in surgical patients and for identifying which patients are at risk in terms of thirst management.

2.7. Statistical Analysis

Number, percentage, mean, minimum/maximum values and median were used to express the data. Compliance with the normal distribution was evaluated by Kolmogorov-Smirnov test. Mann-Whitney U, Kruskal-Wallis test and Spearman Correlation analysis were used for statistical comparisons. Mann-Whitney U test with Bonferroni correction was used as a post-hoc test. For the results, $p < 0.05$ was considered statistically significant.

3. Results

The mean age of the patients was 57.9 ± 12.3 years and 60.0% were male. It was found that 56.8% of the patients were primary school graduates and 51.2% underwent intestinal surgery (Table 1).

Table 1. Sociodemographic and operative characteristics of the patients

Variables		n(%)
Age (Mean$\pm$SD)	Q1-Q3 (52-66.5), Min-Max (19-82)	57.9 $\pm$ 12.3
Gender	Female	50(40.0)
	Male	75(60.0)
Marital status	Married	104(83.2)
	Single	21(16.8)
Educational status	Primary education	71(56.8)
	Secondary education	40(32.0)
	Higher education	14(11.2)
Employment status	Yes	44(35.2)
	No	80(64.8)

Table 1. Sociodemographic and operative characteristics of the patients (Continued)

Presence of chronic disease	Yes	73(58.4)
	No	52(41.6)
Type of surgical intervention performed	Intestine	64(51.2)
	Biliary system	40(32.0)
	Gastric	16(12.8)
	Liver and spleen	5(4.0)
Type of surgery	Traditional surgery	43(34.4)
	Laparoscopic surgery	82(65.6)
Q1-Q3 and Min-Max		Mean±SD
Time elapsed postoperatively (hour)*	(18-31)	25.7±11.4
	(10-96)	
Preoperative thirst duration (hour)	(11-15.5)	15.7±10.3
	(8-72)	
Average amount of fluid consumed daily in routine (ml)	(2000-3000)	2623.6±727.6
	(1200-4500)	

n= Number, %= Percent, SD= Standard Deviation, Min= Minimum, Max= Maximum, ml= Milliliters, *Time of data collection from patients

The mean TSAS score of the patients was 10.2±5.7 (Table 2).

Table 2. Mean scores of patients on the Thirst Symptom Assessment Scale

Thirst Symptom Assessment Scale	Q1-Q3	Min-Max	Median	Mean±SD	Cronbach alfa
	5-17	0-18	9	10.2±5.7	0.816

n= Number of patient, SD= Standard Deviation, Q1=First quartile, Q3= Third quartile.

It was determined that the thirst status of the patients varied according to the presence of chronic disease ($p=0.035$), type surgical procedure ($p<0.001$), and type of surgery ($p<0.001$). It was determined that the mean scores of the TSAS differed according to the surgical procedure performed, and the Mann-Whitney U test with Bonferroni Correction was used as a post-hoc test to compare the groups to find the reason for the difference ($p<0.0083$). It was determined that the severity of thirst was higher in patients who underwent surgical procedures for the liver and spleen than in patients who underwent surgical procedures for the intestine and in patients who underwent gastric surgery than in patients who underwent intestinal surgery ($p<0.001$ and $p<0.001$). Patients who underwent surgical procedures for the liver and spleen had higher thirst severity than patients who underwent surgical procedures for the biliary system and patients who underwent gastric surgery had higher thirst severity than patients who underwent biliary surgery ($p<0.001$ and $p=0.002$). A positive correlation was found between preoperative thirst duration ($p<0.001$) and postoperative thirst duration ($p=0.007$) and mean TSAS scores (Table 3).

Table 3. Comparison of thirst status according to patients' characteristics

Variables		Thirst Symptom Assessment Scale			Test
		Mean±SD	Q1-Q3	Min-Max	
Gender	Female	10.1±5.7	5-17.2	0-18	$p:0.861$
	Male	10.3±5.7	5-17	0-18	$U:1840.500$

Table 3. Comparison of thirst status according to patients' characteristics (Continued)

Marital status	Married	10.5±5.6	5-17	0-18	p:0.153
	Single	8.4±5.8	4.5-13.5	0-18	U:877.000
Employment status	Yes	9.1±5.9	5-17.5	0-18	p:0.085
	No	10.8±5.5	6-17.5	1-18	U:1451.000
Presence of chronic disease	Yes	11.1±5.8	6-18	1-18	p:0.035
	No	8.9±5.4	5-14.5	0-18	U:1480.000
Type of surgical intervention performed	Intestine ¹	9.9±5.7	6-16	0-18	p<0.001
	Biliary system ²	7.5±3.8	5-9.7	1-18	X ² :29.196
	Gastric ³	15.8±4.9	3-18	17-18	p ¹⁻³ <0.001*
	Liver and spleen ⁴	17.4±1.3	16.5-18	15-18	p ¹⁻⁴ <0.001*
					p ²⁻³ :0.002*
Type of surgery	Traditional	13.7±5.5	10-18	0-18	p<0.001
	Laparoscopic	8.4±4.9	5-12.5	0-18	U:868.500
Age (year)					p:0.119
					r:0.140
Preoperative thirst duration (hour)					p<0.001
					r:0.378
Time elapsed postoperatively (hours)**					p:0.007
					r:0.239
Average amount of fluid consumed daily in routine (ml)					P:0.323
					r=-0.089

n= Number of patient, SD= Standard Deviation, Min= Minimum, Max= Maximum, Q1=First quartile, Q3= Third quartile, ml= Milliliters, *Time of data collection from patients, U= Mann Whitney U test, X²= Kruskal Wallis test, r= Correlation coefficient, *= Bonferroni corrected Mann Whitney U test (p=0.0083). **Time of data collection from patients

4. Discussion

The mean TSAS score of the patients was found to be below the average with 10.2±5.7. Türk and Erkan (2024) found that the mean TSAS score was close to average (10.71±5.73) in patients undergoing abdominal surgery. Belete et al. (2022) found that the mean postoperative VAS thirst score was 4.39 ± 2.97, which was below the average. Rizalar et al. (2019) determined that patients experienced moderate postoperative thirst in their study conducted with the participation with general surgery clinic patients. Piccoli et al. (2023) found that patients experienced moderate thirst in their study in which surgical patients constituted the sample. Özsoy et al. (2023) also reported that the thirst levels of the patients were below average in the 0th, 1st and 2nd hours after surgery, although they increased as time progressed. When the study results are analyzed, it is seen that the patients experienced thirst at different levels after surgery.

In the study, it was observed that the severity of thirst was higher in patients with chronic diseases compared to those without chronic diseases. It has been reported that thirst is experienced more frequently in patients with some chronic diseases. In patients with diabetes, excessive desire to drink water has been reported as one of the most important symptoms of the disease (National Health Service, 2022). It has also been reported that nearly half of patients with heart failure suffer from frequent thirst and increased thirst intensity (Eng et al., 2021). Dry mouth and thirst are also the main complaints in hemodialysis patients with high interdialytic weight (Yemina et al., 2023). Zeng et al. (2024) also

emphasized that a history of coronary heart disease is a risk factor for thirst after anesthesia. Therefore, changes caused by chronic diseases in the body, severity of the disease, medications used in treatment, and other factors cause patients to experience thirst (Zheng et al., 2025). In parallel with the literature, the finding of this study shows that the presence of chronic diseases in patients may affect thirst.

Thirst severity differed according to the surgical procedure performed in the study. It was determined that the severity of thirst was higher in patients who underwent surgical procedures for the liver and spleen than in patients who underwent surgical procedures for the intestine and bile duct. Similar to our finding, Rızalar et al. (2019) found that the postoperative thirst severity of patients who underwent liver/pancreas surgery was higher than that of patients who underwent other surgical interventions and associated this with high postoperative blood glucose levels. In the literature, the surgical procedure performed is attributed as a risk factor for thirst, and thirst symptoms may be observed more in patients, especially in surgeries with a high risk of bleeding such as heart and liver (Ak et al., 2023). In the light of this information, thirst may be more severe in patients undergoing liver surgery due to elevated blood glucose levels and increased amount of bleeding. In addition, it was determined that the severity of thirst was higher in patients who underwent surgery for the stomach than in patients who underwent surgery for the intestine and biliary system. In the study by Türk and Erkan (2024), postoperative thirst level was found to be lower in patients with cholecystitis or cholelithiasis compared to patients who underwent abdominal surgery for gastrointestinal cancer or appendicitis. In addition to fluid restriction, factors such as the duration of the surgical procedure and the amount of blood loss may vary depending on the type of surgery, and the results should be interpreted by taking these factors into consideration (Türk & Erkan, 2024).

Thirst severity differed according to the type of surgery performed in the study. The thirst severity of patients who underwent laparoscopic surgery was lower than that of patients operated on with the traditional method. In contrast to our finding, in the study by Türk and Erkan (2024), thirst severity after traditional surgery was found to be lower than after laparoscopic surgery. Meta-analyses have revealed the superiority of laparoscopic surgery over traditional surgery due to less bleeding, shorter duration, and other factors (Jien & Xiaohua, 2021; Jin et al., 2018). The amount of bleeding and shorter operation time in laparoscopic surgery compared to traditional surgery may have caused the severity of dehydration to be lower.

In this study, it was determined that the severity of thirst increased as the preoperative and postoperative thirst duration increased. Belete et al. (2022) determined that the risk of postoperative thirst increased 13.8-fold in patients with thirst duration ≥ 15 hours compared to patients with thirst duration < 15 hours. Ak et al. (2023) found that thirst severity progressed with increasing fasting time in patients undergoing orthopedic surgery. The results suggest that restriction in oral intake exacerbates postoperative thirst.

5. Conclusion

Thirst levels of patients undergoing abdominal surgery were found to be below average. The presence of chronic disease, type of surgery, type of surgical procedure, and preoperative and postoperative thirst duration are factors affecting thirst. Awareness of surgical nurses about thirst and factors that may affect thirst should be increased, patients at risk for thirst in the postoperative period should be identified, thirst

assessments should be performed, and thirst should be managed in clinics with evidence-based practices.

Authors Contributions

Topic selection: FD, ZKÖ, ZM; Design: FD, ZKÖ, ZM; Planning: FD, ZKÖ, ZM; Data collection and analysis: FD, ZKÖ, ZM; Article writing: FD, ZKÖ, ZM; Critical review: FD, ZKÖ, ZM.

Conflict of Interest

No conflict of interest has been declared by the authors.

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