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Research Article

Effectiveness Of Ice Cold Normal Saline With Menthol On Thirst Relief Among Post Operative Patients

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ABSTRACT

Background: Thirst is a frequent and important cause of pain in patients who have had operative operations and are being held nil by mouth. Consequently, among postoperative patients, thirst has been shown to be one of the most common, intense, and untreated complaints. Strategies involving ice cold saline along with menthol, which target pre-absorptive processes, are beneficial in relieving thirst. The purpose of this study is to determine how effectively menthol and ice cold work to relieve patients' postoperative thirst.

Materials and method: A true-experimental study with evaluative approach was conducted among 60 postoperative patients using simple random sampling technique with the degree of thirst and its discomfort being measured simultaneously early stages and thereafter. In this study, control group participants received placebo whereas, experimental group received ice cold normal saline with menthol drop.

Results: The experiment revealed differences between the pre- and post-intervention phases in the level of discomfort and distress of thirst. In postoperative patients, a statistically significant correlation was discovered between the demographic variables, and the intensity of thirst.

Conclusion: Reduced post-operative thirst was shown to be much aided by ice cold normal saline with menthol drop. the result is found to be statistically difference at level of 0.05.

key words: Surgery, thirst, nil by mouth, postoperative patients, ice cold normal saline with menthol.

Introduction

When survival depends on water restriction, thirst is a strong, painful feeling that cannot be disregarded. It is among the most common discomforts during the Post-Anaesthesia Recovery (PAR) and Initial Postoperative Period (IPP).[1] Thirst is defined as the anticipation or want to consume water; it is not always induced by physiological factors. It can also be triggered by habits, taste, or the feeling of dryness in the throat or mouth, as well as by the urge to consume hot or cold liquids. Under this theory, there are two different ways that thirst is triggered. Firstly, thirst feeling is triggered to correct the osmolarity imbalance caused by increased serum osmolarity in blood plasma due to intracellular dehydration. When there is a loss of fluid in the extracellular media, or hypovolaemia, the second step is initiated.[2] The second-most common cause of discomfort for surgery patients during the postoperative phase was fear of thirst. Thirst is particularly uncomfortable for surgery patients, since reports suggest that it can cause feelings of weakness, suffocation, irritability, and despair. In addition to physiological cues and symptoms, cultural, emotional, behavioural, and dietary factors also influence thirst.[3]

The American Society of Anesthesiologists published Guidelines for Preoperative Fasting, advised patients of every age to abstain from clear liquids for two hours prior to procedures involving general anesthesia or local anesthesia; for soft diet and milk, children and adults are permitted to fast for six hours; and for meals containing fried foods, fats, or meat, it is recommended to fast for eight hours or longer. Nonetheless, despite verified facts in the literature, the period observed for fasting of liquids and solids is the same in a clinical

context. This fact indicates that the nurses' activities are based on an institutional protocol requiring patients to fast for a prolonged period of time.[6]

Due to a combination of circumstances, including extended fasting, the use of anticholinergic and opioid drugs, and other conditions, surgical patients are considered to be at increased risk for developing thirst.[1] Since the amount of electrolytes lost during blood loss is directly correlated with the body's water content, blood loss also affects the IPP's perception of thirst. The patient experiences blood loss during the transoperative phase, which may cause a decrease in arterial blood pressure. To restore equilibrium, hypotension initiates the synthesis of renin and all subsequent chemical reactions until they produce angiotensin II, which causes the person to get thirsty.[13] Even though thirst is common in PAR—roughly 75% of cases—the medical team undervalues it and does not measure, identify, or treat it.[1] Even however, because thirst is a subjective symptom that may be easily diagnosed by looking for signs such as dry lips, sour or bitter flavour in the mouth, thick saliva, dryness in the oral cavity and an urge to drink water.[2] Additionally, there are other elements that are significant inducers of thirst is following surgery, including fear, the anaesthesia When asked about their memories of the anaesthesia recovery phase following cardiac surgery, patients have stated that they were on the verge of starvation and almost lost consciousness. Thirst was reported as the most common symptom by many patients (43.8%) in a research involving 160 patients during IPO used during the procedure, discomfort, and emotional issues.[4] Seventy-five percent of adult patients experience thirst in the first postoperative phase . A different study also found that the mean level of thirst was 6.9-+2.4 and that 89.6% of patients—including 31.8% of gynaecological and obstetric patients—felt thirsty. The patients, reported that their thirst negatively impacted their healing process by causing them distress and trauma.[5]

In the early postoperative phase, it might be difficult to control thirst; oral fluid intake is not advised because of the anaesthetic medicines altered state of consciousness as well as the possibility of developing pulmonary aspiration from nausea and vomiting. For this reason, one of the biggest challenges and most important issues facing medical experts is figuring out simple and safe strategies to reduce patients' postoperative thirst. Studies have shown that treating with ice chips or gargling with icy water can substantially reduce the thirst.[6] Providing ice chips was found to be a more efficient method of relieving the discomfort associated with thirst while recovering from anesthesia.[4] Because ice activates oropharyngeal receptors, administering ice has a greater impact on quelling thirst. A small quantity of ice and compounds related to menthol can also lessen the severity of thirst.[6] Staff members should recognize and support patients who are experiencing extreme discomfort and imbalance during the perioperative phase, since thirst is a marker of these conditions.[4]
Taking this into consideration, the study's objective is to assess how well ice cold combined with menthol relieves the severity and suffering of post-operative patients' thirst.

Materials and methods

Study type

This is a true experimental with evaluative approach

Study location

The present study was conducted in KLE's Dr Prabhakar Kore Charitable Hospital located in the city of karnataka, belagavi, India.

Sample size: 60 postopertaive patients

Study groups

Participants who were given a placebo represented the control group. The participants in the experimental group were given ice cold normal saline with menthol.

Study eligibility criteria

The factors that followed were the inclusion criteria: patients who are Nil per oral route for at least 6 hours including pre-operative NPO period and undergoing surgery following general and spinal anesthesia with ability to communicate. The exclusion criteria were as follows: patients who developed complications during surgery, those who are having swallowing difficulties and mechanically ventilated patients.

Sampling technique:

The samples were chosen using a simple random selection procedure in accordance with the inclusion and exclusion criteria. Those who satisfied the requirements for inclusion were assigned at random to either group 1 (control group) or group 2 (experimental group).

Data collection tools:

The following sections were used in structured interview to obtain data:

Section A: A structured Proforma to elicit Demographic variables: age in year, gender (male, female), type of surgery (urological, neurological, abdominal, orthopedics, others), post operative hours (0-5, 6-12, 13-24), type of anesthesia (general, spinal).
Section B: Standardized Thirst Intensity Scale: An individual's level of thirst can be defined as its severity, strength, or volume. Postoperative patients' level of thirst was assessed using a visual analogue scale (VAS). Patients were asked to verbalize their level of thirst (Yes/No) and rate it on a 10-cm visual analog scale (0 being the least amount of thirst, and 10 being the greatest amount of thirst that the patient has ever experienced. Using the interrelated reliability method, the reliability was examined. The VAS scores were classified as mild (0-3), moderate (4-6), and severe (7-10)[6].
structured Proforma for demographic variables to elicit baseline variables were sent for validation to 5 experts (5 nursing experts) from the field of medical surgical nursing, out of whom 3 experts have sent back the tool after validation. The modifications for baseline variables were made as per experts opinion and in discussion with the guide.
Pilot study: Ten patients participated in a pilot research to evaluate the instrument's viability and applicability as well as the amount of time needed to fill the tools.

Procedure

The hospital's medical superintendent officially authorized the study to be conducted. Individual patients who fulfilled the eligibility requirements during the preoperative phase were contacted, and those who agreed to participate in the study were asked for written consent. The patients were informed of the study's objective by the researchers. Once informed consent was obtained, the participants were randomized to either the control group, which would get regular treatment, or the experimental group, which would receive ice cold normal saline with menthol. patientwho satisfied the inclusion requirements were contacted, extended an invitation to take part in the study, and had their first tool filled out by the investigators. questions concerning the degree of thirst were asked as soon as the patient was released from the recovery room without any complications. The use of 3 ml of frozen saline was advised following consultation with the designated anesthesiologist and surgeon because it is a tiny amount and allows for greater control over any potential issues. As a result, a 3 ml ice cube containing normal saline flavored with 2 drops of menthol was given to the study group and was allowed to the patient to completely dissolve. The identical procedures were repeated for session II after thirty minutes. concerning both groups Fifteen minutes after the interventions were finished, a post-test assessment of the degree of thirst was conducted. To guarantee blinding, a different nurse—not the investigator—performed the post-test assessment.

Results

The data gathered to evaluate the impact of ice cold normal saline with menthol on postoperative thirst in sixty postoperative patients is analyzed and interpreted in this chapter. Both descriptive and inferential statistics are used in the computation of the results.

Findings related to experiment and control group with pretest levels of Thirst.

Levels of Thirst	Experiment group	%	Control group	%	Total	%	□²	p-value
Mild	0	0.00	0	0.00	0	0.00	1.0714	0.3006
Moderate	3	10.00	1	3.33	4	6.67		
Severe	27	90.00	29	96.67	56	93.33		
Total	30	100.00	30	100.00	60	100.00		

majority of those involved Severe thirst was reported by 27 (90.00%) of the individuals, and minority participants In the experimental group, 3 subjects (10.00%) reported moderate thirst, whereas the majority of participants Severe thirst was reported by 29 (96.67%) of the individuals, and minority participation In the control group, 1 (3.33%) of the participants reported having moderate thirst.

Findings related to experimental and control group with post-test levels of thirst.

Levels of Thirst	Experiment group	%	Control group	%	Total	%	□□²	p-value
Mild	24	80.00	0	0.00	24	40.00	45.0000	0.0001*
Moderate	6	20.00	10	33.33	16	26.67		
Severe	0	0.00	20	66.67	20	33.33		
Total	30	100.00	30	100.00	60	100.00		

majority participants 24(80%) of subjects experienced mild thirst and minority participants 6(20.00%) of subjects experienced moderate thirst in experimental group, where as majority of 20(66.67%) subjects experienced severe thirst and minority of 10(33.33%) of subjects experienced moderate thirst in control group. The difference is found to be statistically significant (p=0.0001*, chi square=45.0000) at the 0.05 level.

Findings related to experiment and control group with pretest and post-test scores of Thirst by Mann-Whitney U test.

Time	Groups	Mean	SD	Sum of ranks	U-value	Z-value	P-value
Pretest	Experiment group	8.13	1.20	963.00			
	Control group	8.00	0.98	867.00	402.00	-0.7097	0.4779
Posttest	Experiment group	2.57	1.07	466.00			
	Control group	7.00	1.02	1364.00	1.00	-6.6382	0.0001*
Difference	Experiment group	5.57	1.14	1365.00			
	Control group	1.00	0.74	465.00	0.00	-6.6530	0.0001*

results revealed that mean of pre test 8.13, standard deviation 1.20 in experimental group, where as mean of pretest 8.00, standard deviation 0.98 in control group. (U value=402.00, Z value= -0.7097, p value=0.4779) the result is not statistically significant at level of 0.05 in control group.
Mean of post test 2.57, standard deviation 1.07 in experimental group, where as mean of posttest 7.00, standard deviation 1.02 in control group. (U value= 1.00, Z value= -6.6382,p value= 0.0001*) the result is found to be statistically difference at level of 0.05. in experimental group.
Mean of difference 5.57, standard deviation 1.14 in experimental group, where as mean of difference 1.00, standard deviation 0.74 in control group. (U value= 0.00, Z value= -6.6530, p value 0.0001*) the result is found to be difference at the level of 0.05 hence the hypothesis (H_1) is accepted.

Findings related to experiment and control group with pretest and post-test scores of Thirst by Wilcoxon matched pairs test.

Groups	Time	Mean	SD	Mean Diff.	SD Diff.	% of change	Z-value	P-value
Experiment group	Pretest	8.13	1.20					
	Posttest	2.57	1.07	5.57	1.14	68.44	4.7821	0.0001*
Control group	Pretest	8.00	0.98					
	Posttest	7.00	1.02	1.00	0.74	12.50	4.1168	0.0001*

*p<0.05

Results revealed that mean of pre test 8.13, standard deviation 1.20 in, mean of posttest 2.57, standard deviation 1.07, (mean difference 5.57, SD difference 1.14, % of change 68.44, Z value 4.7821, p value 0.0001*) results found to be statistically difference at the level of 0.05.
Mean of pretest 8.00, standard deviation 0.98, and mean of posttest7.00, standard deviation 1.02 (mean difference 1.00, SD difference 0.74, % of change 12.50, Z value 4.1168, p value 0.0001*) results found to be statistically difference at the level of 0.05.

Findings related to Association between pretest levels of thirst with demographic characteristics in experimental group.

Characteristics	Pretest levels of thirst							P-value
	Mild	%	Moderate	%	Severe	%	Total	
Age groups								
21-30yrs	0	0.00	1	12.50	7	87.50	8	0.6590
31-40yrs	0	0.00	0	0.00	5	100.00	5	
41-50yrs	0	0.00	1	25.00	3	75.00	4	
51-60yrs	0	0.00	1	14.29	6	85.71	7	
>=61yrs	0	0.00	0	0.00	6	100.00	6	
Gender								
Male	0	0.00	3	21.43	11	78.57	14	0.0510
Female	0	0.00	0	0.00	16	100.00	16	
Type of surgery								
Urological surgery	0	0.00	1	20.00	4	80.00	5	0.3490
Neurological surgery	0	0.00	0	0.00	3	100.00	3	
Abdominal surgery	0	0.00	0	0.00	9	100.00	9	
Orthopaedic surgery	0	0.00	0	0.00	5	100.00	5	
Others	0	0.00	2	25.00	6	75.00	8	
Post-operative hours								
0 to 5 hours	0	0.00	1	100.00	0	0.00	1	0.0060*
6 to 12 hours	0	0.00	2	10.53	17	89.47	19	
13 to 24 hours	0	0.00	0	0.00	10	100.00	10	

Type of anaesthesia								
General anaesthesia	0	0.00	0	0.00	17	100.00	17	0.0370*
Spinal anaesthesia	0	0.00	3	23.08	10	76.92	13	
Total	0	0.00	3	10.00	27	90.00	30	

association between post operative hours, type of surgery with pre test level of thirst in experimental group. There was significant at ($p<0.05$) association was found on post operative hours and type of surgery in demographic variables. Hence the hypothesis (H_2) is accepted.

Discussion

Thirst is an extreme kind of discomfort that is common in the first few hours following surgery. Although patients are aware that fasting is necessary, this does not lessen their pain and suffering; however, medical professionals often ignore it in clinical practice. From the standpoint of the patient during the recovery phase, thirst is a significant stressor. The objective of the study was to compare the effects of placebo treatment with ice cold normal saline with menthol on postoperative patients' ability to relieve thirst.

control group and experimental group participants stated being thirsty. Researchers' analysis of the intervention in relation to hypothesis$_1$—"Participants who receive ice cold normal saline with menthol experienced mild thirst compared to the patient who will receive placebo treatment as measured by thirst intensity scale"—revealed changes in the experimental group's mean thirst scores during the course of the study, as well as changes in the experimental group's intensity scores with significant statistical differences between the experimental and control group.

In order to reduce thirst and dry mouth after nasal surgery, a study examined the hydrating outcomes of gargling ice water and using moist gauze vs humidifying the oral cavity. The group's thirst was less intense after gargling with ice water, suggesting that this practice was more successful than alternative approaches.[7] who investigated the impact of applying ice or gauze with a cold saline solution to relieve patients' oral conditions and thirst during laparoscopic cholecystectomy; however, the variation in the thirst score among the experimental group (which received frozen gauze with saline solution) and the control group (which received ice or wet sponge) was statistically significant.[8]

An investigation revealed the benefits of gargling with cold water after surgery for reducing postoperative thirst and enhancing oral health in orthopedic patients. The group that underwent the intervention—hourly gargling with cold water for eight hours following surgery—showed improved oral cavity and decreased thirst. The authors came to the conclusion that, for patients undergoing orthopedic surgery following general anesthesia, cold water gargling is a helpful nursing intervention for reducing thirst and enhancing oral health.[9]

The impact of a treatment (cold water spray, mentholated lip hydration, and oral swabs) on thirst and discomfort was examined in a randomized clinical trial designed to treat dry mouth and thirst in patients admitted to the intensive care unit. The study found that, when comparing the intervention group to the usual care group, there was a substantial decrease in the mean degree of thirst and pain. For every intervention session, the control group reported dry mouth at a rate that was 1.9 times higher.[10] In a study comparing the effects of wet gauze with cold saline against wet gauze with cold water, researchers discovered that both groups' levels of thirst improved, but the group using cold saline saw a greater improvement than the group using cold water.[11] According to a new study, ice popsicles are more effective at reducing thirst in the early postoperative period than room-temperature water.[12]

Conclusion

The application of ice cold normal saline with menthol to the experimental group caused a $p<0.05$ (significant difference) in post-operative thirst, according to the study's findings. In accordance to the results, using ice cold normal saline mixed with menthol was a helpful treatment for improving post-operative thirst caused by anaesthetic and nil by mouth effects. It also helped to prevent complications related to post-operative thirst, so this intervention could be promoted as an institutional policy and used as standard care for patients who were experiencing post-operative thirst.

Limitation

study included 60 limited samples of post operative patients based on data from one health care facility. Therefore, the results might be neither representative nor generalized.

Implications and recommendations

A greater focus is being placed on the role that nurses play in carrying out autonomous interventions that pose no risk in order to preserve patients' comfort and safety. Cold normal saline combined with menthol is thought to be a simple, inexpensive, and safe nursing intervention that reduces the intensity of thirst in postoperative surgery patients. After completing a clinical assessment, the researchers intend to incorporate this intervention as one of the supplementary nursing treatment strategies for postoperative thirst. It is imperative that nurses

pursue continuing education in order to address patients' thirst in a safe and efficient manner, taking into account the significant discomfort that causes so much suffering to patients. It would be beneficial to conduct additional research to find out how well menthol and ice cold normal saline can reduce the intensity of thirst in patients receiving intensive medical treatment. It is advised to repeat the study with a bigger sample size.

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