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Research Article

A quasi experimental study to see the effectiveness of oral care with ice cold saline versus room temperature saline on thirst and oral condition among post-operative patients undergone abdominal surgeries at GGS hospital, Faridkot, Punjab

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Abstract

Patients often have dry mouth following abdominal surgery as they are kept NPO postoperatively for 2-3 days which also leads to thirst and changes in oral conditions. This study was undertaken to see the effectiveness of oral care with ice cold saline versus room temperature saline on thirst and oral conditions among postoperative patients' undergone abdominal surgeries. **Material and Methods:** Convenient sampling technique was used to allocate the study subjects. A sample of 60 patients who had undergone abdominal surgeries was assessed. Subjective thirst scoring and objective oral assessment (with room temperature saline in group I and ice cold normal saline in group II), pre and post intervention was done. The tool used was a structured questionnaire enquiring demographic and bio physiological profile, numeric rating scale (NRS) for thirst assessment and objective oral assessment tool for assessing oral conditions. Independent & paired t-tests and Pearson's correlations were used for inferential statistics. **Results:** The study findings revealed that the mean score of the thirst levels of the subjects in the ice cold saline group experienced less thirst after the intervention as compared to the subjects in room temperature saline group. The paired t test value 5.37 of the subjective thirst assessment was found to be statistically significant at 0.00 level. **Conclusion:** This study highlights the need for adopting modified oral care procedures such as use of ice cold saline for effective thirst management in post operative patients

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1. Introduction

Abdominal exploration is a surgery to examine the contents of the abdomen. Surgery that opens the abdomen is called a laparotomy [1]. Generally, patients are expected to stay in the hospital for 4 to 5 days after the surgery. Patient suffers from pain and other discomforts especially thirst during first two days as patient is kept NPO. Patients should be kept NPO (nothing by mouth) if ordered by the surgeon. Patients often have a dry mouth following surgery, which can be relieved with oral sponges dipped in ice water or lemon ginger mouth swabs [2]. From a clinical standpoint, most clinicians do not consider that a surgically induced ileus has resolved until bowel sounds reoccur and flatus is passed and, hence, feeding is not usually restarted until this has happened. This makes patient have feeling of thirst and dry mouth. Bowel sounds depend on luminal gas and the presence of intestinal motor activity, and take 1-3 days to reappear clinically. The passage of flatus follows the reappearance of bowel sounds and usually takes 2-3 day, with defecation occurring at 4-5 days post-abdominal surgery [3]. Dry mouth and thirst terms that are often used interchangeably in the literature along with nausea, vomiting and fatigue are thought to be the most commonly experienced symptoms of terminal dehydration. Thirst may occur but studies have shown that IV hydration isn't effective in alleviating thirst much, if at all. Good oral hygiene, using oral

swabs and lubricants are usually adequate to relieve dry mouth [4].

Aim

Aim of the study is to help postoperative patients in relieving thirst and improve oral condition of patients so as to make patients more comfortable post operatively.

Objectives

1. To assess the effect of oral care with ice cold saline on thirst and oral condition.
2. To assess the effect of oral care with room temperature saline on thirst and oral condition.
3. To compare the effectiveness of ice cold saline versus room temperature saline on thirst and oral condition

2. Materials and methods

Research approach and design

An interventional research approach was used for the study. A quasi-experimental design was employed in the study to see the effectiveness of oral care with ice cold saline versus room temperature saline on thirst and oral condition among post-operative patients undergone abdominal surgeries at GGS Hospital. Faridkot, Punjab

Study setting

The study was conducted in the surgery wards of Guru Gobind Singh Medical College and Hospital, Faridkot.

Target population

The study population consisted of 60 post-operative patients undergone abdominal surgery and admitted in the above mentioned areas of GGS Medical Hospital, Faridkot.

Sampling technique

Convenient sampling technique was used for data collection i.e. the post-operative patients undergone abdominal surgery who were fulfilling inclusion and exclusion criteria were selected as study sample

Description of tool

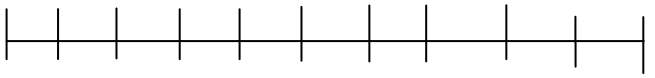
The following structured tool was used for data collection:

Tool 1 (section A): Socio Demographic profile including code no., C.R. No, ward, diagnosis, age, gender, educational status, history of substance abuse.

- Tool 1 (section B): Bio physiological profile asking about mouth breathing, nausea/ vomiting, other than routine medication and any other associated diseases.

Tool 2: Numeric rating scale for thirst

No thirst Extreme thirst



0 1 2 3 4 5 6 7 8 9 10

Score 0 = none

Score 1-3 = mild

Score 4-6 = moderate

Score 7-10 = severe

Reliability of tool

The reliability was checked by interrelated reliability method.

Ethical consideration

Ethical clearance was given by the ethical committee of University College of Nursing, Baba Farid University of Health Sciences. Formal written permission was taken from the Senior Medical Officer of Civil Hospital, Faridkot to collect the data. Informed consent was taken from each study subject.

Tool 3: Oral assessment tool

SN	Category	0	1	2	Score
1	Lips	Smooth, pink, moist	Dry or cracked	Bleeding or ulcerated	
2	Tongue	moist, pink	Coated, with or without redness.	Blistered or cracked	
3	Saliva	Watery	Thick	Absent	
4	Mucous membranes	Pink and moist	Reddened or coated without ulceration	Ulcerated with or without bleeding	
5	Gums	Pink, stippled and firm	Oedematous with or without redness	Spontaneous bleeding or bleeding with pressure.	
Oral Assessment Scale total (0-10)					

- Oral Assessment Score: 0-10
- 0-- no changes
- 1-3-- mild changes
- 4-6-- moderate changes
- 7-10-- severe changes

3. Results

The descriptive as well as inferential statistics has been used to analyze the data in order to get meaningful results according to the objectives of the study. The data was analyzed with the use of statistical software SPSS 16.0. Under descriptive statistics frequency, percentages mean, and standard deviation have been used whereas for inferential statistics t-test has been used. Results of the study were shown in the form of tables and figure. The level of significance selected for the study was $p<0.05$ level.

Testing the homogeneity of the two group by comparing the preintervention thirst scores and oral assessment scores of subjects in both the groups.

Objective 1: To assess the effect of oral care with ice cold saline on thirst and oral condition.

Table No. 1 (a)

Mean and standard deviation of thirst scores of subjects of ice cold saline group using Thirst Numeric Rating Scale

N=30

Variable	Mean±SD	t-value	p-value
Pre-intervention Score	5.17±0.70	24.97	.000*
Post-intervention Score at 15 minutes	2.30±0.53		
Post-intervention Score at 4 hours	4.23±0.73	8.76	.000*

*=significant ($p<0.05$)

Table no. 1(a) depicts the effect of ice cold saline on thirst in post-operative patients' undergone abdominal surgeries. As per subjective thirst assessment, after the intervention the mean thirst score was reduced from 5.17±0.70 to 2.30±0.53after 15 min of the intervention and was recorded as

4.23±0.73 after 4 hours of intervention. In order to explore the effectiveness of room temperature saline on thirst, paired t-test value was computed. The paired t-test value 24.97 and 8.764 of thirst assessment at 15min and 4hours after intervention was found to be statistically significant at .000 level.

It is seen from the score, that the use of ice cold saline is effective in reducing moderate thirst to mild thirst in post-operative patients

Table no. 1 (b)

Mean and standard deviation of oral assessment scores of subjects of ice cold saline group using Oral Assessment Scale

N=30

Variable	Mean±SD	t-value	p-value
Pre-intervention Score	2.30±0.98	16.15	.000*
Post-intervention Score at 15 minutes	1.07±0.91		
Post-intervention Score at 4 hours	1.93±1.05	4.10	.000*

*=significant **(p<0.05)**

Table no. 1(b) depicts the effect of ice cold saline on oral conditions in post-operative patients undergone abdominal surgeries. As per objective oral assessment, after the intervention the mean oral assessment score was reduced from 2.30±0.98 to 1.07±0.91after 15 min of the intervention and was recorded as 1.93±1.05 after 4 hours of intervention. In order to explore the effectiveness of room temperature saline on oral condition, paired t-test value was computed. The paired t-test value 16.15 and 4.10 of oral assessment at 15min and 4hours after intervention was found to be statistically significant at .000 level.

It is comprehended from the score that the use of ice cold saline is effective in improving oral conditions in post-operative patients.

Objective 2: To assess the effect of oral care with room temperature saline on thirst and oral condition.

Table No. 2(a)

Mean and standard deviation of thirst scores of subjects of room temperature saline group using Thirst Numeric Rating Scale

N=30

Variable	Mean±SD	t-value	p-value
Pre-intervention Score	4.97±0.76	19.98	.000*
Post-intervention Score at 15 minutes	3.27±0.83		
Post-intervention Score at 4 hours	4.33±0.66	5.64	.000*

*=significant **(p<0.05)**

Table no. 2 (a) depicts the effect of room temperature saline on thirst in post-operative patients undergone abdominal surgeries. As per subjective thirst assessment, after the first intervention the mean thirst score was reduced from 4.97 to 3.27 after 15 min of the intervention and was recorded as 4.33 after 4 hours of intervention. In order to explore the effectiveness of room temperature saline on thirst, paired t-test value was computed. The paired t-test value 19.98 and 5.64 of thirst assessment at 15min and 4hours after intervention was found to be statistically significant at .000 level.

It is seen from the score, that the use of room temperature saline is effective in reducing moderate thirst to mild thirst in post-operative patients

Table No. 2(b)

Mean and standard deviation of oral assessment scores of subjects of room temperature saline group using Oral Assessment Scale

N=30

Variable	Mean±SD	t-value	p-value
Pre-intervention Score	2.17±0.95	20.15	.000*
Post-intervention Score at 15 minutes	1.23±0.90		
Post-intervention Score at 4 hours	2.10±0.92	1.44	.161NS

*=significant (p<0.05)
NS=nonsignificant (p>0.05)

Table no .2(b) depicts the effect of room temperature saline on oral conditions in post-operative patients undergone abdominal surgeries. As per objective oral assessment, after the intervention the mean oral assessment score was reduced from 2.17±0.95 to 1.23±0.90 after 15 min of the intervention and was recorded as 2.10±0.92 after 4 hours of intervention. In order to explore the effectiveness of room temperature saline on oral condition, paired t-test value was computed. The paired t-test value 20.15 and 1.44 of oral assessment at 15min and 4hours after intervention was found to be statistically significant at .000 level and non-significant respectively.

It is seen from the score, that the use of room temperature saline is effective in improving oral condition in post-operative patients when assessed after 15 min (first intervention) but the effect weakens within 4 hours of intervention.

Objective 3: To compare the effectiveness of ice cold saline versus room temperature saline on thirst and oral conditions.

Table no. 3(a)

The post-intervention mean scores of control group and experimental group for Thirst score and oral assessment scores after 15 min of intervention

N=60

Post intervention scores after 15 min of intervention	Room temperature saline group (Mean±SD)	Ice cold saline group (Mean±SD)	t-value	p-value
Thirst Score	3.27±0.83	2.30±0.53	5.37	0.000*
Oral assessment score	1.23±0.90	1.07±0.91	0.72	0.477

*=significant (p<0.005)
NS=nonsignificant (p>0.05)

Table no. 3(a) depicts the post-intervention mean score of thirst and oral assessment of the study subjects in the room temperature saline group was 3.27±0.83 & 1.23±0.90 respectively and in the ice cold saline group was 2.30±0.53 and 1.07±0.91 respectively.

So, according to the scores there is statistical significance which means there is difference between two groups i.e. intervention with ice cold saline is more effective than room temperature saline for reducing thirst levels of the subjects but there is no statistical significant difference in the results pertaining to oral conditions thus both the interventions have almost same effect on oral conditions.

Hypothesis testing

H_1: There will be no significant difference on thirst level and oral conditions among groups receiving oral care with room temperature normal saline versus ice cold normal saline.

The above stated hypothesis is partially accepted as evident from the study results. Hypothesis is accepted in terms of thirst and

rejected in context of oral condition. The study findings revealed that study subjects who had oral care with ice cold saline (mean score 3.27 with standard deviation 0.83) experienced less thirst as compared to subjects who had oral care with room temperature saline (mean score 2.30 with standard deviation of 0.53). The paired't' test value 5.37 of the subjective thirst assessment was found to be statistically significant at .000 level. But the results for oral assessment did not come out to be statistically significant. This means ice cold saline is more effective in reducing thirst in postoperative patients in comparison to room temperature saline. Whereas both ice cold saline and room temperature saline has same effect on oral conditions of postoperative patients.

Delimitations

The present study is delimited to

- Patients who had undergone abdominal surgery and admitted in GGS Hospital.
- Patients who were present in the setting during the study period.
- Patients who were willing to participate and have given written informed consent for the same.

4. Discussion

Post-operative patients' undergone abdominal surgeries frequently report thirst and changes in oral conditions due to NPO state and alleviation of thirst might improve their discomfort and thus, their quality of life. The effectiveness of saline in thirst reduction is well known. This study is the first study of its kind in which the effect of ice cold saline was studied as in oral care to reduce thirst and improve oral conditions. In the present study, the score were found to be significantly (p=0.000) reduced with the use of ice cold saline in these patients.

This part deals with the detailed discussion of the findings of the study interpreted from the statistical analysis. The findings are discussed in relation to the objectives, need for the study and related literature.

The first objective was to assess the effect of oral care with ice cold saline on thirst and oral conditions. The statistical analysis showed that the thirst was moderate in nature while mild changes were observed in oral conditions during pre-assessment phase.

The results of present study shows that ice cold saline is effective in relieving thirst which is supported by similar study conducted by Cho EA, Kim KH, Park JY to observe the effects of frozen gauze with normal saline and ice on thirst and oral condition of laparoscopic cholecystectomy patients and found after oral care was provided twice, there were significant differences in thirst level among the groups. When oral care was provided twice, the oral condition of tongue, saliva, mucosal membrane, and gingiva was improved in patients receiving gauze frozen with normal saline or ice. Gauze frozen with normal saline and ice can be effective for oral care in reducing the thirst level and improving the condition of the oral cavity [8].

The results of present study shows that ice cold saline is effective in improving oral condition of post-operative patients which is supported by similar study conducted by Jumin Park to see the Effects of Mouth Care with Cold Sterile Normal Saline (CSNS) in Head and Neck Cancer (HNC) Patients Undergoing Concurrent Chemo radiotherapy (CCRT) and found Oral dryness and severity of OM (oral mucositis) were significantly lower in the EG ($p < .05$). Oral comfort was significantly higher in the EG ($p < .05$) [5].

The results of present study shows that oral care is effective in relieving thirst which is supported by similar study conducted by S.R. Arai, M. Kiranou, K. Puntillo on a promising non-pharmacological thirst intervention for intensive care patients found that a simple bedside intervention may potentially improve one of the most pervasive symptoms (thirst) reported by ICU patients [6].

The results of present study shows that ice cold saline is effective in improving oral condition of post-operative patients which is supported by similar study conducted by Lee KN, Tae YS. to see the Effects of Mouth Care on Oral Discomfort of Cancer Patient

undergoing Chemotherapy. The results were summarized as follows:

1. 'The experimental group which received oral care with cool normal saline should be lower self-reported oral discomfort on 3, 5, 7, 14 days after chemotherapy was supported (p=.025-.000).

2. 'The experimental group which received oral care with cool normal saline should be lower observational symptom oral discomfort on 3, 5 days after chemotherapy was not supported, but on 7, 14 days after chemotherapy was supported(p=.0011, 0.001).

In conclusion, the patient who received oral care with cool normal saline showed the decrease in degree of oral discomfort of cancer patient undergoing chemotherapy. So oral care with cool normal saline had been judged the nursing intervention to improve oral discomfort of cancer patients undergoing chemotherapy [7]**.**

Conclusion

On the basis of the findings of the present study the following conclusions were drawn.

1. Thirst was found moderate during postop condition of patients
2. There is statistical significant reduction in thirst after oral care with both room temperature normal saline and ice cold normal saline but later being better in relieving thirst
3. The results for oral assessment did not come out to be statistically significant.
4. Hence H1 Hypothesis is partially accepted because ice cold saline is more effective in reducing thirst levels than room temperature saline but there is no statistical significance in case of oral conditions.

Implications

The findings of the study have several implications for the nursing profession i.e. clinical practice, nursing education, nursing administration and nursing research. In all the areas nurses act as an educator, organizer, leader, counselor and motivator.

Implications for nursing education

•The present study is applicable to the nursing education. The results of the study enable the surgery ward nurses to provide oral care with better therapeutic and patient satisfaction results.
•Students should be encouraged to use this type of simple therapeutic modality for oral care in clinical area.
•Proper dissemination of information regarding the beneficial effects of ice cold normal saline in reducing thirst of postoperative patients.

Implications for nursing practice

- The statistical significant thirst reduction among post-operative patients under gone abdominal surgery suggests that ice cold saline is a safe and effective complimentary method in thirst management, which can be safely added to many other measures used by surgery nurses and physicians.
- Ice cold saline is clearly an effective therapeutic measure for the relief of thirst.

Implications for nursing administration

Administration has to a play role in providing quality service. Nurses have complex and highly varied practice with a rapidly growing, properly developed and documented scientific and humanistic knowledge base.

- The need of well-organized in service education programme is felt to provide quality patient care. The co-coordinator of in service education cell should assess the areas of deficits in nurses' knowledge and practice and organize intensive training seminar or workshop on these areas.
- Ward in – charges and clinical instructors should arrange the clinical teaching for nurses and nursing students.
- Periodic evaluation of nursing practices should be done.

Implications to nursing research

Findings of the study will act as catalyst carry out more extensive research on a large population sample in different areas.

- As the Nursing Profession becomes more grounded in research, nurse initiated interventions such as those in this study provide for medical and physical (e.g. comfort) need of the patient.
- The study will be a valuable references material for future researches.
- The findings of the study would help to expand the scientific body of professional knowledge upon which further researches can be conducted.
- Large scale studies can be conducted in consideration of other contributing variables.

Limitations

- It is a small sample-sized study
- Purposive sampling was done for postoperative patients' undergone abdominal surgery (laparotomy) at GGS Medical College and Hospital, Faridkot which restrict the generalization of the study to particular setting.
- The results of the study would have been comparatively significant if the study was conducted in summer season.

Recommendations

1. The study can be replicated on a large sample to validate and generalize its findings.
2. The study may be conducted in different settings.
3. A true experimental study could be done.

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