Effectiveness of Thirst Bundle on Thirst and Dry Mouth among Patients Admitted in Intensive Care Units

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Abstract

Thirst can be defined as a longing or desire to drink water, not necessarily generated by a physiological need, but also triggered by habit, taste, dry mouth or throat, the will to consume fluids that provide a sensation of heating or cooling.[1,2]Moderate to severe thirst was similarly reported by 70% of 100 ICU patients.20 Prevalence estimates for dry mouth may vary and are dependent on factors such as the nature of the sample (age, gender, health etc.)[3]. A quasi-experimental study by using purposive sampling technique was conducted on 40 patients admitted in ICUs of tertiary care hospital, Ludhiana, Punjab. Data was collected by using categorical thirst intensity scale and challecombe clinical oral dryness scale for thirst intensity and dry mouth. The findings of the study showed that Majority of the patients 14(70%) having very very thirsty level of thirst intensity among experimental group and 16(80%) of the patients having very thirsty level of thirst intensity among control group Pre-interventional. Most of the patients 13 (65%) among experimental group and Maximum of the patients 19 (95%) among control group were having Moderate dryness Pre-interventional. More than half of the patients 12(60%) having thirsty level of thirst intensity among experimental group and Majority of the patients 16(80%) having very thirsty level of thirst intensity among control group post interventional 20(100%) of the patients were having Mild clinical oral dryness among experimental group and Maximum of the patients 19(95%) were having Moderate dryness among control group Post-interventional. Majority of the patients having very very thirsty level of thirst intensity among the experimental group pre-interventional and post-interventional majority of the patients having thirsty level of thirst Intensity. Majority of the patients having moderate level of oral dryness, pre-interventional and all of the patients having mild level of oral dryness post-interventional. Comparison of Thirst intensity among experimental and control group patients found to be statistically significant. Comparison of oral dryness among experimental and control group patients found to be statistically significant.

Key Words: *Thirst bundle, thirst, dry mouth, patients, thirst intensity*

Introduction

Thirst can be defined as a longing or desire to drink water, not necessarily generated by a physiological need, but also triggered by habit, taste, dry mouth or throat, the will to consume fluids that provide a sensation of heating or cooling. Different factors can influence the presence and intensity of the thirst, including, age, comorbidity, nutrition and anxiety.[1,2] There is some confusion about the definition of dry mouth in the literature because the terms “xerostomia” and “salivary gland hypo function (SGH)” have been used interchangeably in relation to the subjective complaints and objective aspects of dry mouth. Xerostomia is the subjective symptom of dry mouth (this could be of a qualitative change in saliva).It is a sensation that is assessed only by directly questioning the individual.[2]According to its etiology, thirst can be osmotic or hypovolemic. Osmotic thirst derives from a slight increase of 1% to 2% in plasma osmolarity, which is able to stimulate the release of the antidiuretic hormone. When the compensatory mechanism provided by the osmotic changes is not effective, thirst is activated, prompting the body to seek water. In turn, hypovolemic thirst is associated with the need for hydric ingestion to restore plasma volume, and its regulatory mechanism depends both on the renin-angiotensin-aldosterone system and the adrenergic action.[1] Once thirst is present, the organism can be satiated in a pre- or post absorptive way[4]. In the pre-absorptive way, the pressure and temperature receptors in the oropharynx monitor the impact of hydric ingestion even before the body absorbs the fluids, acting to regulate this act and interrupt the drinking[5]. In other words, the parts of the brain responsible for thirst satiety are activated without the need for a large volume of water. The post absorptive mechanism occurs when fluid is absorbed, balancing the blood osmolarity. The hospitalized patient experiences stress situations and deprivation of fluid ingestion, often for prolonged periods, which cause the symptom of "thirst".[6,7] Patients with chronic kidney disease on dialytic therapy have more intense thirst and xerostomia (dry mouth), and also need to maintain a diet with fluid restrictions to prevent hypertension, acute lung edema and congestive heart failure.[8,9] In intensive care units, patients face conditions that predispose them to develop the symptom "thirst", such as hydro electrolytic disturbances, dry mouth due to prolonged intubation and use of anticholinergic and opioid medications. In some cases, the difficulty communicating makes it impossible to report thirst, causing discomfort, stress, and irritability[10,11].The surgical patient is exposed to a confluence of factors that result in thirst, such as preoperative fasting, anxiety, surgical-anaesthetic drugs, intubation, intraoperative bleeding, and prolonged oxygen therapy[12]. Thirst is, therefore, a symptom that is present in clinical practice, but frequently undervalued, often unnoticed by the health team, although always recorded in the reports of individuals who experience it.[13]

Material and Method

The present study was based upon the quantitative research approach. A Quasi-experimental design was used to assess the effectiveness of thirst bundle on thirst and dry mouth among patients admitted in ICUs. The present study was conducted at selected ICUs of Dayanand Medical College & Hospital, Ludhiana, Punjab. the population for the present study comprised of critically ill patients with thirst and dry mouth. Purposive sampling technique was used for the present study to draw sample from the target population, Total of 40 critically ill patients (20 Experimental Group and 20 Control Group) were included as subjects. The study tool comprises of three parts. These were- PART A (I):- It includes Socio-demographic profile of critically ill patients admitted in ICUs. The profile has 09 components including Age, Gender, Educational Status, Occupation, Marital Status, Habitat, Religion, Type of family, Socio economic Status (as per Kuppuswamy's Scale 2018). PART A (II):- It includes Clinical profile of critically ill patients admitted in ICUs. The profile has 06 components including Diagnose, Type of illness, Duration of illness, Duration of ICUs stay, Type of medications and Type of feeding. PART (B):- It includes standardized Categorical thirst intensity scale to assess the thirst intensity among critically ill patients. It includes 7 points to assess the thirst intensity among critically ill patients admitted in ICUs. PART (C):- It includes standardized Challacombe scale of clinical oral dryness to assess the dry mouth among critically ill patients. The scale has 10 statements to assess the dry mouth among critically ill patients admitted in ICUs. Content validity of tools was determined by expert's opinion. The reliability of standardized Categorical thirst intensity scale is pre-determined by inter-rater method and tool was found to be reliable as r = 0.90 and the reliability of standardized Challacombe scale of clinical oral dryness is determined by inter-rater method and tool was found to be reliable as r = 0.84. Data was collected on the basis of inclusion and exclusion criteria the subjects were selected for the study by purposive sampling technique. Data related to Socio-demographic and clinical profile was collected from subjects through self-report by using interview schedule. Categorical Thirst Intensity Scale and Challacombe Scale of clinical oral dryness were used to collect the data regarding Thirst intensity and oral dryness severity by observation. Minimum of 30 minutes (3 sessions of 15 min each for 3 consecutive days) was spent for data collection on each patient. Information regarding Socio-demographic profile and clinical profile was obtained, Pre assessment of patients for thirst intensity (by using categorical thirst intensity scale) and dry mouth (by using Challecombe scale of clinical oral dryness), Intervention (Sterile cold water swab, Sterile ice cold water, Sterile Menthol Water Spray) for each patient for 10 minutes for 3 consecutive days (only in experimental group),Post assessment of patients for thirst intensity (by using categorical thirst intensity scale) and dry mouth (by using Challecombe scale of clinical oral dryness.

Major Finding of the Study

In Experimental Group- Half of patients10 (50%) were in the age group of 31 to 40 years. More than half of the patients 13 (65%) were working. Majority of the patients 16 (80%) were married. More than half of the patients 13 (65%) were from Nuclear family. More than half of the patients 13 (65%) were having acute type of illness. Majority of the patients 17 (85%) were having 06 – 15 days duration of ICUs stay.

Table No.1 Frequency Distribution of Patients as per their pre-interventional Thirst intensity among experimental and control group. **N=40**

Level of Thirst Intensity	Experimental Group (n1 = 20)		Control Group (n2 = 20)	
	f (%)	Mean±SD	f (%)	Mean±SD
Thirsty	00(00)	--	01(05)	04.00±00.00
Very Thirsty	06(30)	05.00±00.00	16(80)	05.00±00.00
Very Very Thirsty	14(70)	06.00±00.00	03(15)	06.00±00.00

Maximum Score = 06

Minimum Score = 00

All of the patients 20 (100%) were on I/V type of medication. Majority of the patients 17 (85%) were on I/V Fluids/TPN feeding. In Control Group- Majority of the patients 14 (70%) were males. Half of the patients 10 (50%) were working. Majority of the patients 18 (90%) were married. Majority of the patients 15 (75%) were from urban area. Majority of the patients 16 (80%) were having acute type of illness. Most of the patients 14 (70%) were having 06 – 15 days of duration of ICUs. stay. All of the patients 20 (100%) were on I/V type of medication. Some more important findings were, Majority of the patients 14 (70%) having very very thirsty level of thirst intensity pre-interventional among experimental group.

Table No.2 Frequency Distribution of Patients as per their Pre-interventional Severity of Dry Mouth among experimental and control group.

N=40

Types of Dryness Severity	Experimental Group (n1 = 20)		Control Group (n2 = 20)	
	f (%)	Mean±SD	f (%)	Mean±SD
Mild	00(00)	--	00(00)	--
Moderate	13(65)	05.07±00.75	19(95)	04.89±00.87
Severe	07(35)	07.14±00.37	01(05)	07.00±00.00

Maximum Score = 10

Minimum Score = 00

Majority of the patients 16 (80%) of the patients having very very thirsty level of thirst intensity pre-interventional among control group. Most of the patients 13 (65%) were having Moderate dryness pre interventional among experimental group. Maximum of the patients 19 (95%) were having moderate dryness pre-interventional among control group. More than half of the patients 12 (60%) having thirsty level of thirst intensity post-interventional among experimental group. Majority of the patients 16 (80%) having very thirsty level of thirst intensity post-interventional among control group.

Table No.3 Frequency Distribution of Patients as per their Post interventional Thirst intensity among experimental and control group.

N=40

Level of Thirst Intensity	*Experimental Group (n1 = 20)*		*Control Group (n2 = 20)*	
	f (%)	**Mean±SD**	**f (%)**	**Mean±SD**
Neutral	08(40)	00.30±00.00	00(00)	--
Thirsty	12(60)	00.40±00.00	04(20)	04.00±00.00
Very Thirsty	00(00)	--	16(80)	05.00±00.00

Maximum Score = 06

Minimum Score = 00

20 (100%) of the patients were having Mild clinical oral dryness post-interventional among experimental group. Maximum of the patients 19 (95%) were having Moderate dryness post-interventional among control group.

Table No. 4 Frequency Distribution of Patients as per their Post-interventional Dry Mouth among experimental and control group.

N=40

Types of Dryness Severity	*Experimental Group (n1 = 20)*		*Control Group (n2 = 20)*	
	f (%)	**Mean±SD**	**f (%)**	**Mean±SD**
Mild	20(100)	02.10±00.55	01(05)	03.00±00.00
Moderate	00(00)	--	19(95)	04.31±00.47
Severe	00(00)	--	00(00)	--

Maximum Score = 10
Minimum Score = 00

Thirst intensity within the group among experimental group and control group were found to be statistically significant at (p = 0.00*) and (p = 0.03*) and between the groups both in pre- test and post -test found to be statistically significant at (p = 0.00*) (p= 0.00*).

Table No.5 Comparison of Thirst Intensity of patients among experimental and control group in Pre-Test and Post-Test within the groups and between the groups **N=40**

Thirst Intensity Score		Pre-Test		Post-Test		Paired t/p Value
	n	Mean±SD	Mean%	Mean±SD	Mean%	
Experimental Group	20	05.70±0.47	95.00	03.60±0.50	60.00	t = 11.91 p = 0.00*
Control Group	20	05.10±0.44	85.00	04.80±0.41	80.00	t = 02.34 p = 0.03*
Unpaired t/p Value		t = 4.13 p = 0.00*		t = -8.27 p = 0.00*		

(*significant p≤0.05) (NS Non-significant p≥0.05)

Severity of oral mouth within the group among experimental group and control group were found to be statistically significant at (p = 0.00*) and (p = 0.002*) and between the groups both in pre- test and post -test found to be statistically significant at (p = 0.02*) (p= 0.00*).

Table No.6 Comparison of Dry Mouth of patients among experimental and control group in Pre-Test and Post-Test within the Groups and between the groups

N=40

Dry Mouth Score		Pre-Test		Post-Test		Paired t/p value
	n	Mean±SD	Mean%	Mean±SD	Mean%	
Experimental Group	20	05.80±1.19	58.00	02.10±0.55	21.00	t = 12.33 p = 0.00*
Control group	20	05.00±0.97	50.00	04.25±0.55	42.50	t = 3.88 p = 0.002*
Unpaired t/p Value		t = 2.32 p = 0.026*		t = -12.33 p = 0.00*		

(*significant p≤0.05) (NS Non-significant p≥0.05)

Discussion

The analysis of the present study revealed that 14 (70%) of the patients having very very thirsty level of thirst intensity followed by 06 (30%) of the patients having very thirsty level of thirst intensity. Most of the patients i.e. 13 (65%) were having Moderate level of type of dryness severity and 07 (35%) patients were having Severe type of dryness severity among experimental group. The present study showed that the investigator plan a thirst bundle for the patients who were having thirst and dry mouth and implement it on the patients to see the effectiveness of it on thirst and dry mouth. Findings of the present study showed that level of thirst intensity and level of oral dryness significantly fall (in experimental group) after applying thirst bundle among admitted patients in ICUs. Findings of the present Study showed that the level of thirst intensity and level of oral dryness found to statistically significantly within and between the groups.

Conclusion

Majority of the patients having Very Very Thirsty Level of Thirst Intensity among the experimental group pre-interventional and post-interventional majority of the patients having Thirsty Level of Thirst Intensity. Majority of the patients having moderate level of oral dryness pre-interventional and all the patients having mild level of oral dryness post-interventional. Comparison of Thirst intensity among experimental and control group patients found to be statistically significant. Comparison of Oral Dryness among experimental and control group patients found to be statistically significant.

Conflict of Interest- None

Source of Funding- Self

Ethical Clearance: The Quasi-experimental study was approved by research and ethical committee of DMC & Hospital, Ludhiana. The subjects were explained about the objectives and activities of research projects. Instructions were given to them and they were assured that their responses would be kept confidential by providing information sheets and informed consent was obtained from the patients.

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