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Measuring of Body Temperature for Adult Patients with Thoracic Surgery through First Week after Surgery

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Abstract
***Objectives**: The study aims toassess the impact ofsurgeryonthe body temperature of patients undergoing thoracic surgery throughout the first week,andto find out the relationshipbetweenbody temperatureafter the surgery anddemographic characteristicsof thestudy sample.*
Methodology: A descriptive study design wascarried out through the period fromDecember 2016 to February 2017 to assessbody temperatureafterthoracic surgeryfor patientsadmitted to thesurgicalfloors. The study was conductedat Al-shahedGhazial-HaririHospital andIbn Al-NafisHospitalforChest Diseases. The research sampleincluded60 patients. Data were collectedby using aquestionnaire, which was built by the researchersrelatedthe purposes of thestudy. The questionnaire was composed offour parts:the first partincludedthe demographic dataandcontained(5) items.Thesecond partincluded amedical historyof the patientandcontained (6) items. The third partincludedinformation about themeasurement ofthe temperature ofthe body andcontained(4) items,andpart four included factors affecting themeasurement of temperatureandcontained(7)items.Thecredibility ofthe content ofthe questionnaire was establishedthrough(7)experts to test the competence andstabilityby calculatingthe correlation coefficient(Pearson), which wasstatisticallyacceptablevalue(r: 0.847). Data were collected throughdirect interview with the study sample, and were analyzedby applyingdescriptive statistical analysis(frequency, percentage)aswellasdeductiveanalysisof the data (weighted arithmetic mean) usingStatisticalPackage of Social Sciences(SPSS V. 16).
***Results:** The study showedthat the majority ofthe sampleweremale with age group of(31-40) of the injured patients. Most of them were with elementarygraduatesandwere married,andthe monthly incomewas not enough.*
***Recommendation**s: The study recommendedthe need toset upan educational programto control infectionswithin thesurgicaloperation floorsinIraq.*

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I. Introduction

Post-operative fever is one of the most common complications that patients might face. In fact, over half of all post-operative patients will have a higher than normal temperature in the days following their surgical procedure (Thompson et al., 2003).Clean surgery is defined as uninfected surgery, where no inflammation is encountered as well as the respiratory, alimentary, and genitourinary tracts are not opened (El Baz, Middel, Van Dijk, Boonstra, &Reijneveld, 2009). The importance of infection rates in clean surgery should not be underestimated and considered as an indicator of quality and used to determine surgical performance(Kirkland, Briggs, Trivette, Wilkinson, & Sexton, 1999). The body's defense mechanisms seem to work efficiently at a higher temperature. Fever is just one part of an illness, and several times it does not considered as an important than the presence of other symptoms such as cough, sore throat, fatigue, joint pains, aches, chills, nausea, and other symptoms (Bellows, Smith,Malsbury, & Helton, 2013). Hyperthermia results when thermoregulation breaks down because of excess heat generation, an inability to dissipate heat, overwhelming environmental heat, or a combination of these factors. Unlike fever, in which the thermal set point is elevated with excess sweating that causes stressed muscles to spasm. With adequate rest and fluid replacement, the body adjusts the distribution of electrolytes and the cramps disappear (Williams & Hopper, 2015).

II. Methodology

A descriptive study design was usedto determine the impact of chestoperations upon body temperature at the 1st week post-operative.The study was carried out during the period from December 2016 to February 2017. A purposive "non-probability" sample of (60) patients was used. These patients were attending in patients'clinical department at Al-shahedGhazial-HaririHospital andIbn Al-NafisHospitalforChest Diseases. A questionnaire was designed and constructed by the researchers to measure the variables. Such a construction was employed through review of literature.The questionnaire consisted of (4) parts.

1. Part I: Demographic Information Sheet;it was consisted of (5) items which included: Gender, age, marital status, level of education, monthly income.
2. Part II: It was measurement medical history;it was consisted of (6) items.
3. Part III: It was method measurement of temperature of the body; it was consisted of (4) items.
4. Part III: It was method measurement of temperature of the body;it was consisted of (4) items.
5. Part IV: It was measurement the factors affect the temperature;it was consisted of (7) items.

The content validity of the instrument was established through a panel of (8) experts.They were (8) faculty members from the College of Nursing/ University of Baghdad. These experts had more than (9) years of experience in their Job with mean of (21.5) years, and (SD=7.04).They were asked to review the questionnaire whether they agreed or disagreed with its content (item). The results of the review of the questionnaire by the experts revealed that allof them agreed thatitems of the questionnaire were clear and adequate to be used as a measurement in this study. Data were collected through the utilization of the constructed questionnaire by using interview technique with patientsin surgical wards. Each interview took at least 20 minutes for each patient. The determination was conducted during the period of the 15thof December 2016to 10thof February 2017. The researchers used the appropriate statistical means in the data analysis which include the descriptive data analysis (Frequencies and Percentage) and inferential data analysis (Mean of score and Pearson correlation coefficient). Whereas mean of scores equal (1.33 – 1.66) was considered significant, greater than 1.66 was considered highly significant. The data were analyzed using statistical package of social sciences(SPSS) version 16.0.

III. Results

Table (1). Distribution of Demographic characteristics of (60) patients

Gender	Frequency	Percent	Cumulative Percent
Male	47	78.3	78.3
Female	13	21.7	100.0
Age	Frequency	Percent	Cumulative Percent
20-30	7	11.7	11.7
31-40	20	33.3	45.0
41-50	14	23.3	68.3
50-60	16	26.7	95.0
Above 61	3	5.0	100.0
Marital status	Frequency	Percent	Cumulative Percent
Married	46	76.7	76.7
Single	7	11.7	88.3
separated	4	6.7	95.0
Divorced	1	1.7	96.7
Widowed	2	3.3	100.0
Educational level	Frequency	Percent	Cumulative Percent
No read & write	12	20.0	20.0
read & write	5	8.3	28.3
Primary graduate	17	28.3	56.7
Intermediate graduate	14	23.3	80.0
Secondary graduate	8	13.3	93.3
Institute &collage graduate	4	6.7	100.0
Monthly income	Frequency	Percent	Cumulative Percent
Sufficient	21	35.0	35.0
Barely Sufficient	23	38.3	73.3
Insufficient	16	26.7	100.0

This table indicated that most of the study sample were male (47) and were accounted for (78.3%). Most of them were with age group (31-40) and were accounted for (33.3%). Also,the majority of them were married(46) and were accounted for (76.7%). Regarding the educational level, 28.3% were with Primary graduate, and 23 patients (38.3%) were with Barely Sufficient monthly income.

Table (2).Mean of scores for items of medical historyof the patients

	The patient suffering from	Frequency		MS	Sig
		YES	NO		
1	Hypertension	43	17	1.7	H
2	Diabetic	27	33	1.45	M
3	Cardiac disease	16	44	1.27	L
4	Urinary disease	13	47	1.22	L
5	Allergy	10	50	1.17	L
6	Endocrinology	5	55	1.09	L

This table shows that high mean of score in items (1) and moderate mean of score on item(2) and low mean of score on the remaining items.

Table (3).Distribution Factors effecting body temperature for 60 patients

Cover the patient	Frequency	Percent	Cumulative Percent
Blanket	18	30.0	30.0
A sheet	34	56.7	86.7
Not Covered	8	13.3	100.0
State ofwindows in room	Frequency	Percent	Cumulative Percent
Open	11	18.3	18.3
Half open	21	35.0	53.3
Not open	28	46.7	100.0
Antipyretic drugs	Frequency	Percent	Cumulative Percent
used	17	28.3	28.3
As needed	14	23.3	51.7
Not used	29	48.3	100.0
Used heat condition	Frequency	Percent	Cumulative Percent
High	1	1.7	1.7
Moderate	32	53.3	55.0
Not used	27	45.0	100.0
Texture of skin	Frequency	Percent	Cumulative Percent
Moist	3	5.0	5.0
dry	14	23.3	28.3
Normal	43	71.7	100.0
Type thermometer used	Frequency	Percent	Cumulative Percent
Mercury	49	81.7	81.7
Electronic	11	18.3	100.0

This table shows that majority of Cover the patient with sheet were (34), and most of them were State ofwindowsin room is not open (28), used antipyretic (29), used moderate heat condition (32), presented with normal texture of skin (43), and used Mercurythermometer (49).

Table (4). Distribution characteristic of patients' degree of temperature

Degree of body temperature	Frequency	Percent	Cumulative Percent
35.5-36.5	3	5.0	5.0
36.5-37.5	10	16.7	21.7
37.5-38.5	28	46.7	68.3
38.5-39.5	15	25.0	93.3
39.5-40	2	3.3	96.7
Above 40	2	3.3	100.0
Total	60	100.0	

This table shows that majority of degree of temperature were in group(37.5-38.5) and were accounted (46.7%).

Table (5) Distribution characteristic of 60 patients'days after sugary

Day ago	Frequency	Percent	Cumulative Percent
1st	8	13.3	13.3
2nd	24	40.0	53.0
3rd	16	26.7	80.0
4th	4	6.7	86.7
5th	2	3.3	90.0
6th	3	5.0	95.0
7th	3	5.0	100.0
Total	60	100.0	

This table shows that most of them day after sugary whenmeasurement temperature was (2^{nd}) were accounted (40.0%).

Table (6) correlation coefficient among (gender, age, marital status, educational level, income, Measurement of time, Degree of temperature, Day ago)

	Gender	Age	Marital status	Educational level	Monthly income	Degree of body temperature	Day ago
Gender	1	.317	.129	.155	.105	.217	.089
Age		1	.922	.026	.304	.928	.420
Marital status			1	.626	.886	.110	.071
Educational level				1	.007	.151	.066
Monthly income					1	.057	.030
Degree of temperature						1	.588
Dayago							1

**. Correlation is significant at the 0.01 level (2-tailed).

Results in Table Six shows that there is strong positive relationship between marital status, degree of body temperature and age, also there is strong positive relationship between Educational level, Monthly income and Marital status, and there is positive relationship between Day ago and Degree of temperature.

IV. Discussion

Results in Table (1) indicated that most of the study sample were male (47) and accounted for (78.3%). Regarding their age, most of the study sample were in age group (31-40) and accounted for (33.3%). Also,the majority of the study sample were married(46) and accounted for (76.7%). Concerning the educational level, 17 clients were with Primary graduate degree and accounted for (28.3%). Regarding Monthly income, 23 clients had barely sufficient income and accounted for (38.3%). This study findings were supported by (Attia et al., 2001) who showed that male exposure to accidentsmore than female with increased risk of developing complications. Findings in Table (2) showed that high mean of score in item 1, moderate mean of score on item 2, and low mean of score on the remaining items. Most ofchronic diseasesin Iraq include blood pressure and diabetes mellitus and this was announced by the Iraqi Ministry of Health. Such findings were supported by Boffa et al (2008) who were conducted a study on the data of 9033 patients with thoracic surgery in the USA, and authors of this study reported that 66 % of thoracic surgery patients had hypertension and 25% had diabetes mellitus.The result shows that majority of Cover the patient with sheet were (34) and most of them were State ofwindows in room is not open (28), most of them not used antipyretic (29), most of them used moderate heat condition (32), most of sample Normal texture of skin (43), and most thermometer used were Mercury (49)(Table 3). Results in Table (4) presented the distribution characteristics of patients' degree of temperature thatshowed the majority of body temperature were in group (37.5-38.5) and accounted for (46.7%) (Table 4). This result was supported by Frank et al. (1997) who reported that the body temperature of patients with thoracic surgery was ranged between 35.4 and 36.7 degree centigrade.

Table (5) showed that most of the study samplewere measured body temperature two days after sugary and accounted for (40.0%). This result was against of what found by Csendes, Burgos, Roizblatt, Garay, andBezama (2009), who reported in their study of determining the inflammatory response of body after surgery that all targeted study sample did not have any change or elevation in their body temperature. This reflects that a clean surgery does not cause elevation in body temperature and vise versa. Table (6) correlation coefficientshowed that there was a strong positive relationship between marital status, degree of body temperature and age. Also, there was a strong positive relationship between Educational level, Monthly income, and Marital status. Moreover, there was a positive relationship between Day of operation and Degree of body temperature. Body temperature can be affected by age of clients or patients as a normal physiological change, and also can be affected if clients have post-operative procedure in which the body temperature can be elevated if the client have unclean surgery or any other complications.

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